

VSB-Technical University of Ostrava
Faculty of Electrical University and Computer
Science

Master Thesis

VSB-Technical University of Ostrava
Faculty of Electrical University and Computer
Science

Analysis and Implementation of CRM System

2010

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Announcement

I affirm that I work in this thesis by myself. I show the sources of literary and publication, which I used.

In Ostrava

Vu Thi Hong Ha

Requirements.....

Thanks

I would like to thank the lead Ing. Fasuga Radoslav, Ph.D of this Master Thesis for assistance and consultation during this project. Without his help this project wouldn't generated.

Abstract a Klíčová slova

Abstrakt

Tato diplomová práce se zabývá problematikou Customer Relationship Management (CRM) systému. V této práci jsou analýza a implementace nového systému CRM. Systém umí základní funkce: Řízení Aktivit, Řízení Vztahů se Zákazníky, Řízení Prodeje, Řízení Kampaní

Klíčová slova

CRM, CRM systém, datová analýza, funkční specifikace, use case, funkční diagram, and implementace

Abstract and Key Words

Abstract

This Master work describes the problem of Customer Relationship Management (CRM) system. It contains the illustration of the Microsoft Dynamic CRM system. In this work, there is an analysis and implementation of a new CRM system. The system understands basic management functions: Activity Management, Customer Management, Sales Management, and Campaign Management.

Key words

CRM, CRM system, data analysis, functional specification, use case, functional diagram, and implementation.

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1 Introduction

The economic crisis has affected the small and also the large business. The finance was a significant change. The competition among businesses is getting fierce. In this case, if the company do not have the properly way to manage, they can't not stand stability.

About the business management, we know many processes that the business need and use. The management processes are applied to manage the company finance. They can be: a change in human resource, or productivity increase, or product decrease, etc.

In fact, customer is the heart of business. Amount of customer increase or decrease involved the business process. The important of customer to make they understand that the right way is the build customer relationship.

Customer Relationship Management in the business is not really new process but it does not mean that all cannot know how to apply to success. Thanks to the Information Technology, many companies own the customer relationship management software and it is useful for them to manage their customer relationship perfectly. It is built by the company requirements.

By the thesis, we could see over the customer relationship definition, problems, process in the customer relationship management. There is more important thing that we understand the analysis, functions about the customer relationship management.

2 What is Customer Relationship Management (CRM)?

2.1 Customer Relationship Management

Customer Relationship is not a new definition in the business. "Customer Relationship Management is a comprehensive approach for creating, maintaining, and expanding customer relationships".^[2] When the word develops more and more, the word economic is also growth quickly. Many companies are established and competitor between companies is strong. The factor that every company should think first is their customer relationship. They always remember that: how they treat their customers, they will decide the benefit, which companies get in the future. Because of it, now many companies are investing more to create that benefit. The customers now understand more about the service during business transaction than before. It is not easy for the company to get money from customers.

We understand the important of customer relationship. Many CRM solutions are appeared and these are CRM software. Now we wonder "What is CRM?" We can think in a simply way: It is not right if we think CRM is software. CRM is a process used to learn more about customers' needs and behaviors. CRM is to develop relationships with customers stronger. This process is really effective to make integration of information customers, sales, and marketing result.

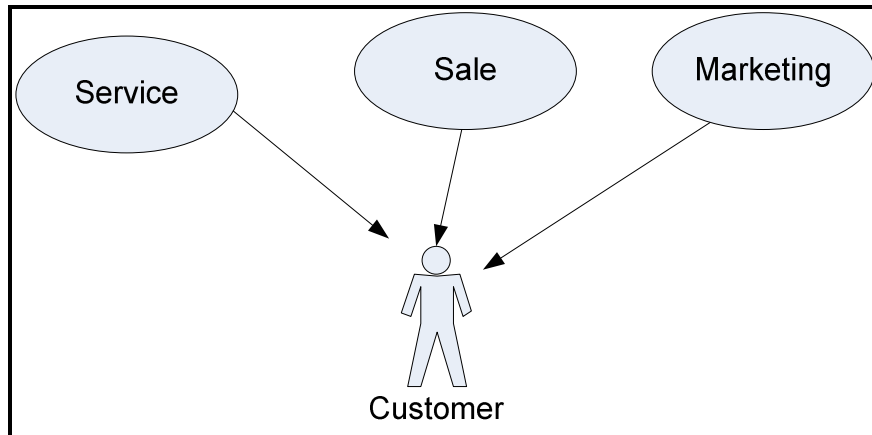


Figure 1: Customer Relationship Management - Overview

The important thing in CRM is concentration on customer. The departments of company focus on their customer such as service, sale, and marketing. The goal of their action is satisfaction of customers. Each of departments has each action to communicate with customers easily and effectively. Here the problem is that they can't manage their customers if amount of them is very large. Information of customers is difficult to find when they need to use or analyze. If we can't manage customer data, we will lose new customers, potential customers, even loyal customers. Because we know the competitor now is strong. If other companies have our customer data, they will make plan to care these customers quickly. Customer is important factor to decide success for an enterprise. Storing customer data is problem to solve immediately. Customer data should be stored logically. The employees whose work is with customer can find the information the most quickly and exactly. Because they not only see these data, but also based on these data they analyze and reports about customers are created.

We talk about customer relationship system. Can it solve problem about customer data? We see through the customer relationship system, the customer's information will be updated and stored in the system database management. Through a search engine specific data, companies can analyze and form a list of potential customers and long-term strategy to set out the appropriate customer care. In addition, enterprises can handle the problems of customers quickly and efficiently. The problem now may be solved.

Customer Relationship Management provides a reliable system to help manage customers and employees, improve employee relations with customers. A policy of customer relationship management strategies include staff training, adjustment method and apply business information technology systems. Customer relationship is not merely software or a technology but also a business strategy, including marketing strategies, training and services that businesses provide to customers. Enterprises can choose a solution, in which customer relationship is put at the center. They care for the needs of customers to achieve this goal is to maintain good relationships with customers and achieve maximum profit in business.

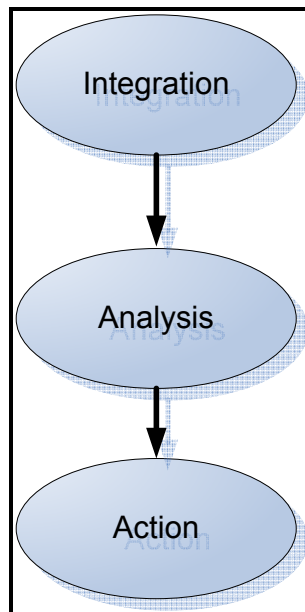


Figure 2: Process of CRM

Follow the figure 2, we understand more why the companied need customer relationship management system. The employees store information of customers. This information is about personal information, customer behaviors or history of business transaction. Every kind of information is integrated. After that the employees own the full version of customer data. The next step we should do that is analysis. They analyze to get results about customer data. The process of analysis is not complex with support tool in the CRM system.

There are general things that from understanding about definition of CRM we get:

- For Customers: CRM contributes to build long-term relationships between customers and businesses. It helps clients understand more, be more attentive service.
- For Enterprises: CRM helps enterprises to listen to their customers much more easily manage the business situation and its development in the past, present and future, to help businesses promote their products , the brand quickly, easily and most cost less
- For managers: CRM provides manager more efficient support tools to manage quickly statistical analysis, evaluate the enterprise's business from the past, present and future; detection difficult, the potential risk of the enterprise. Simultaneously CRM allows manager evaluate the situation and working efficiency of each lower-level employees.
- For employees: CRM allows employees to effectively manage time and their work. CRM helps employees understand the information on each of their customers to make quick method of support, reasonable, create credibility with customers, retain customers longer.

2.2 The important of CRM

The main action of business is service for a particular customer or customers. The company produce products have quality products... But the end, the product is provided to the customers and the company waits for ability of buying of customers. In short, customer is the main factor to affect to business directly.

Customers are the most important in the business. Without customer the business of any companies would not exist. In case, amount of customer in a company decrease, that company may be on the way to the end the business. Customer is the important resource to decide the success of companies. The revenue of company is from money of customers. More customers buy their product, more revenue increase. If customers feel satisfy with any product of any company, they can spent a lot of money and in future they would be a loyal customer of company. It is great thing if we know that: a customer can give new customer for a company. We should understand that relationship is 360 degree cycle. Relationship between customers is very interesting. Moreover, responses of customers in any way help companies to see their mistake in current product or current business transaction. We can image by an example: after buying a new product, a customer talks with the salesperson: "This time I don't like this bag because of this material. Following to the advertisement, this bag is used in the party. But you see this bag doesn't not really fit with my party shirts" If you are a salesperson how do you feel? If you are a analysis in production department, how do you feel? The idea of that customer is so great. You can understand why the company doesn't get high revenue from this product.

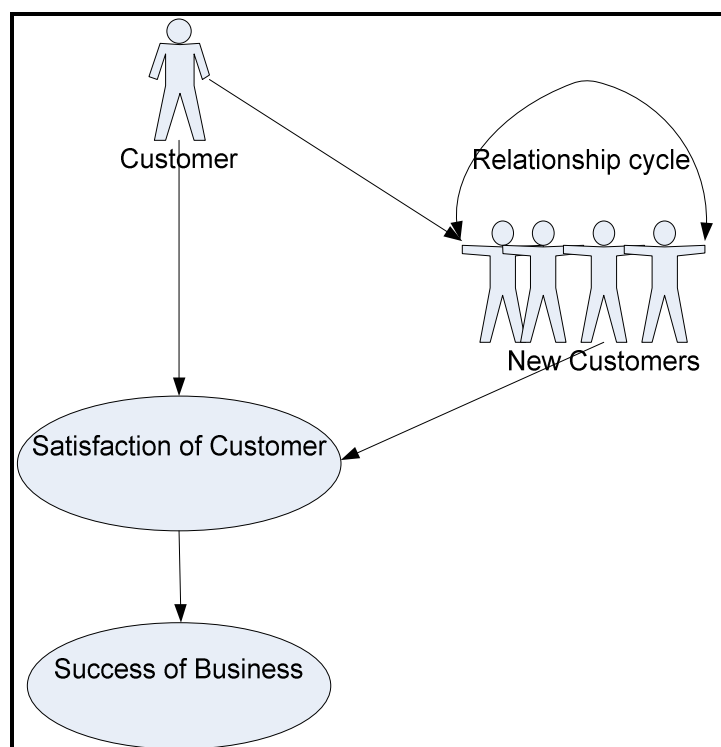


Figure 3: The important of customers in business

The company own amount of customers. It is not enough to go to the success. It is just beginning point to communicate with the customers. Every company would like to buy more and more their product, so continuous step is that the companies should think how to make their customers spend their money to buy these products. It is really important step. If the companies have right decision, their revenue is increased a lot. Why do customers want to buy a product? There are many reasons for this question. In short, customer satisfaction is decision. Customers satisfy with something, such as:

- Product
- The brand of company
- Salesperson
- Marketing campaign
- Customer service

If the companies would like to make the customer satisfy, means that they must do what customers need, what customers require. Process to know the needs of customers is not simply and easy, even only with a small amount of customers. They must collect information of customers, from small to large information. After that the analysis is continued. It is reason that the companies can do business without the customer relationship management.

The companies think that CRM is the strongest weapon. That weapon helps them to develop the customer relationship. Their customers become loyal customers. With the CRM, the companies realize every change of customers easily. Customer information can be found quickly. By CRM customer information is always updated. Companies toward the satisfaction customer. Therefore they always have attention to manage their customer effectively. CRM support them to have action, which make them get customer satisfaction. We could say: CRM is a strategy and also is tool. It is a great combination.

The companies should gain deeply the behavior of their customers. The business actions always modify to ensure that their customer service is the best one. It is not difficult if the company own effective system.

2.3 CRM System

2.3.1 CRM Strategy

CRM system is currently applied in many companies. Because of understanding the important of CRM, almost of companies try to keep and develop their customer relationship. Now more and more companies own our CRM System. CRM is really great. CRM could help companies in customer relationship because in CRM everything is automated. Sales automation, customer service, order management. They belong to business operation. They are important for the action of a company. It is interesting that business operation is automated. Moreover business performance processes is also automated. They are data warehousing, data mining, and analytics. It is the same with other service, such as: voice mail, e-mail, and website.

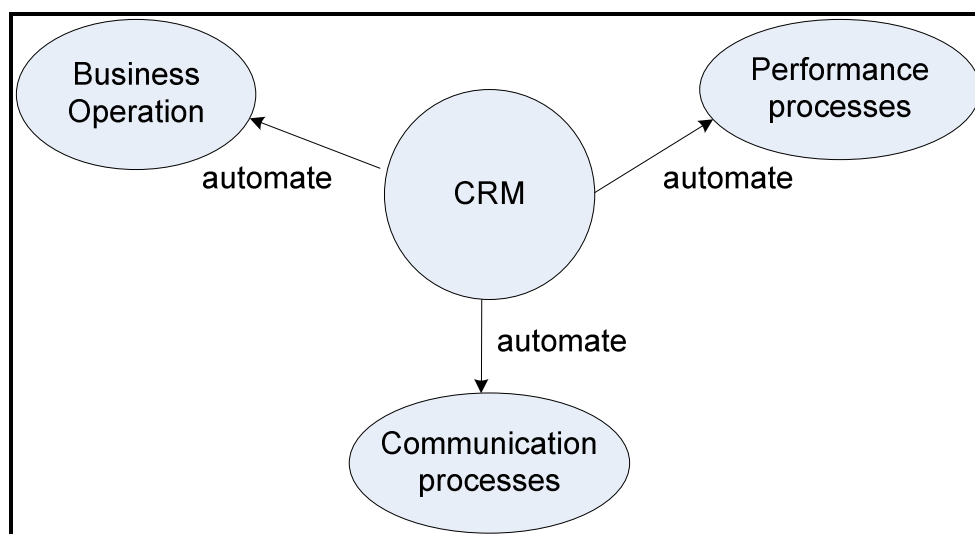


Figure 4: Automating of CRM

They are conscious deeply that if they want success in business they must determine who their customers are and what they want. With the same type of goods, many companies have different customers. There are people willing to buy large quantities of goods that people buy but cannot be purchased in the future .With the same goods, customers have many choices between different providers. Therefore, the chance to win customers for every business is very small. In that competition, many businesses sell goods at present has not one won. But the victory belongs to those enterprises which have many loyal customers.

Loyal customer is understood that customers are buying the business and will continue to select businesses in the next purchase. In fact the impression and feel of the customer's first purchase in enterprises is very important. Most customers are satisfied with the purchase of existing businesses or earlier will continue to buy from businesses in the future when they have needs. So, be less costly to convince them to buy from businesses compared to the cost spent to attract new customers. Today, enterprises have been gradually realized that the creation of maintaining long term customers who will bring greater benefits are increased sales in the short term.

In the companies, now the Marketing Manager should change their mind about what is marketing. Marketing isn't only attempt to sell goods and services. It means that Marketing is derived from a benefit of salesperson. In a world with numerous multi-dimensional interactions, all the current relationship would hardly exist if only from a unilateral interests. The relationship can only arise and be maintained on the basis of the benefits of bilateral and multilateral. Therefore they should see Marketing in side: it starts from the interests of both businesses and customers.

If the companies would like to own an effective CRM System, they should understand other view of CRM: CRM is strategy. Strategy is the direction and scope of an organization over the long-term. CRM strategy approach to ensure that every person in business, not just business manager or sales people, have a sense of how deeply the importance of customers. The motto "have good customer as brilliant as Possible" needs to be thorough instead of " We sell as much as can". Therefore, each employee in any part of any business, direct (marketing, sales ...) or indirectly related to customers (accounting, logistics, reception ...) must be aware that you are attending into CRM. Since then, all actions, words must be directed to make customers feel friendly, reliable, comfortable, be interested. Of course, there will not be successful if the expression that doesn't come from the subconscious of every person that is just the words. We can understand by this example: customers will find empathy with an apology and suggested waiting because the employee is late due to traffic jam. It is really better than he is coming and in fact he hasn't gone out yet. In short, for starting a good relationship, it must come from honesty and sincerity, trust and mutual understanding.

Many companies just think that they only need to buy CRM software and learn to use it. They own expensive CRM software without building a strategy. This situation is a reason why 75% of the business model of CRM implementation failures. It is not right if businesses buy software with modules, which they needs, to have a effective CRM proceed. In fact, those applications are just tools to support CRM strategy. CRM is a way of thinking about and dealing with customer relationship. Therefore CRM strategy must support managing customer relationships. Customers always want that the business understand what they want. They come to the company and choose their products because they think that they need them. There are many kind of customers but there is also a common. If the companies understand them, and give them what they want event they don't show. They will return to these companies. In the world, there are many companies, which sell only luxurious products. They still exist and develop more and more. The reason is their strategy. They really have good relationships with their customers. Here we don't talk about quality of products. Just we care about how they can contact with their customers. In their customer information database, there is real information about the customers. They know that about what their customer really care. They can find easily where their customers live and their revenue. Even they can manage personal information. The companies always get information from their customers. It is important that they get response from customers after customer used a new product. Everything is stored in customer information. It is really helpful for the companies to produce continuous products. A new product is produced by a creation of designer and comments of customers. It is easy for us to understand that why these product really belongs to their customers. The customers always expect new products from these companies and spend a lot of money to buy them. The customers know that the product from

these companies is what they need. Here it is just small example about CRM strategy. It is the way to make customers come back and always buy new products.

CRM strategy is captured and analyzed data which is about company's targeted customers and targeted buying habits. It means that customer behavior is stored in the customer information management. CRM strategic is also a platform to help enterprises to build a structure of organization and a solution of an effective technology. We can say: the "technology" and "strategy" influenced each other, not equal. The companies understand their customer so they know that which kind of product they should product to sell fastest. They have plans and activities for their production. The organizational structure is built. Technology is implemented, which is based on the understanding of organizational structure. It is really right way to success.

2.3.2 How to build a CRM strategy

To build a CRM strategy is not entirely easy. It requires businesses to have a very powerful resource. The CRM Strategy is success, it must contain:

- The purpose of the enterprise deploying CRM
- Strategies to attract customers from old customers to potential customers
- Financial capacity
- Strategic of management shareholders
- Objective growth
- Marketing strategies to promote service to customers

When determining CRM strategy, the companies start from their customers, whether they are businesses, organizations or individuals. The companies should map out a strategy CRM, which is based on business practices of their situation, to avoid unrealistic or wasted. To get answers for CRM strategy, they think about these questions, and finding answers:

- Why customers want to do business, communicate with you?
- During customer transactions, you should care, information management customers like? So you understand more about what clients need and want, and can give customer needs better?
- Which motivation is make customers to continue to do business with you in the future?
- What information can help you stimulate the volume of transactions with customers?

The answers to these questions will be the foundation for the company CRM strategy.

A CRM strategy cannot be successful in isolation. It must be relevant and linked to the overall company's strategy, and it must build on existing sales or marketing strategies that are already in use.

2.3.3 Optional CRM

Operational CRM means supporting the so-called "front office" business processes, which include customer contact (sales, marketing and service). Tasks resulting from these processes are forwarded to employees responsible for them, as well as the information necessary for carrying out the tasks and interfaces to back-end applications are being provided and activities with customers are being documented for further reference.

2.3.3.1 Marketing Automation

With new markets, how do we find the right customers that business towards their career? How to provide the right product to market, and on time? CRM provides tools to support development objectives, implementation, management and analysis marketing strategies. Thanks to the tool of evaluation marketing activities, the companies can manage effectively marketing campaign. If the companies make the right decisions on the information, the marketing investment is increased.

Marketing Automation helps administrators in the establishment of marketing campaign. It is also support tool to implement these campaigns. These tools are:

Marketing Strategy Management: to determine, manage and implement marketing plans effectively during the business. This tool allows to analysis the detail information of each customer directly. There is also to make plan and track Marketing Activities quickly.

E-Mail Management: Send a large amount of emails. All transaction with customers are stored.

List Management: This is a need for the marketing staff to help them create customer lists, which are based on target. They can reuse customer lists, which was in the successful campaign or enter customer lists from mail-house. Moreover, when the customer lists were created, CRM system automatically stores information and data for each individual files, also specify Marketing activities relevant to facilitate maximum sales staff, marketing and customer tracking and handling.

Key Attribute Profiling: Key Attribute Profiling feature to help build a detailed document reflecting the necessary data for each Marketing campaign of the customer. These data are stored, and reported and will be used as a source of basic information for marketing activities in future. In addition to providing information for analysis and cost effective results of each stage marketing activities, the important data may easily track and put into marketing campaigns. **Calls of Customers Management:** The phone calls exposed customers are integrated into each marketing campaign. The employees make a customer list to call, and then make a schedule progress.

Marketing Evaluation tool: Follow campaign marketing, reviews investment cost effective – the employee can analyze marketing campaigns by lead or evaluate other important

details using sophisticated tools or features in CRM reports. CRM also enables connection to each individual sale. It provides immediately data on cost analysis sales.

2.3.3.2 Sales Force Automation

CRM support the companies to manage information of customer transactions, manage the opportunities, analysis sale period, and provide the analysis of sale report.

Sales Forecasting: Enables managers to understand the situation of sale activities, which are based on forecasts on sales and reports.

Source of customers and sales activities Management: This is a tool to manage and analysis all the related details to customer. It is easy to identify contact with new customers, as well as maintaining business relationships with the customer. Through it, customer resources management and sales opportunities as well as the assignment of handling the sales lead goods is made easier.

Management of sales process: Allows overview of sales process, from first meetings with clients until the end contract, allowing you to be able to analyze and effectively manage the sales. And the result is, you always measure success in each possibility trading period; more, the sales staff and managers are always are provided with timely analysis and value at every stage. The detailed reports to make sure the information provided cost and time spent in one transaction. In addition, managers can automate the assigned appointments with customers and tasks to be done in a stage of the sales process, so that sales staff always explains the job quickly when necessary. By providing the information at each stage of the sales process, you can obtain accurate information about a customer can at any time what you need.

Time management: Time management and business operations of the company. **Sales activities:** One of the major challenges your company is to always be connected with the sales staff and know the information important time. With the CRM system, you always have access to the resources needed to complete a sales transaction.

Analysis and reporting: When the sales people want to analyze and make decisions, they are supported by the report and detailed diagrams CRM system. In CRM system, they always have the information needed. In addition, analysis tools and reports can also filter out the data you want.

2.3.3.3 Customer Care Automation (customer care activities)

System sales, better marketing gives your business customers, but that's just the beginning. Improving customer satisfaction, meet increasing demand, support to 24 / 7. CRM manage problems, customer requirements, and the status of translation, the information system library to support customer, in order to achieve the maximum level of cutting costs for business.

The important feature of CRM supports for care activities customers and the benefits that it brings. By providing the public more easily help you in solving customers' problems, the

features of customer care activities in the CRM becomes the element nodes core to help maintain good relationships with customers.

2.3.4 Analytical CRM

Analytical CRM is able to analyze customer behavior to examine and comprehend customer interactions. Data of customer is stored in database. It is necessary to analyze these data. CRM analytical contains:

- Creating
- Maintaining
- Utilizing a data warehouse

Thanks to the data warehouse, the employees can obtain and manipulate data easily. It is reason that in CRM the analysis is not too difficult for staffs. Therefore, they always could give the report and identification about product and services, or distribution channel, or customer data immediately. We can image that data warehouse dimensions: product, transaction, time...

In CRM, the important technology is the data mining. Data mining is help to increase revenue, cut cost. By the data mining, the managers of companies could identify about:

- Relationships between internal factors (price)
- Relationships between external factors (contribution)
- Customer satisfaction
- Sales situation
- Profit
- Data of transactions

The analysis of customer data relate to other analysis:

- Marketing campaign strategy and management
- Optimization of channel relations
- Optimization of customer relationships
- The revenue, reactive, customer maintaining
- Customer Segments
- Increase the customer satisfaction
- Optimization of sales information
- Analysis and error detection
- Financial forecasting
- Optimization of pricing policy
- Building of evaluation program
- Assessment and risk management

Data analysis is continues process and it is period. Therefore the companies could see result of activities in the past and can forecast situation for the next step or in next product, next campaign...If the business decision is made based on feedbacks from decisions and previous analysis, business process will be success, means that the profit is increased.

2.3.4 Collaborative CRM

Collaborative CRM is an approach to CRM. With collaborative CRM, the various departments of a company, such as sales, technical support, and marketing, share any information are interacted with customers. Collaborative CRM supports processes, which is conducted at the back office level. It affects the activities of the customer and the maintaining of customer relationships. Primarily, internal collaborative functions address IT, billing, invoicing, maintenance, planning, marketing, advertising, finances and planning. Its primary intention is to coordinate services to the customer, and supports customer issues and questions.

Collaborative CRM is to get various departments within a business to share useful information. The information obtained serves to collect information. It helps improve the quality of customer service.

We get useful thing from Collaborative CRM:

- Allow the effective interaction with customers through all channel communication
- Allows collaboration via the web to reduce cost v service customers
- Integration with Call Centers to allow customers directly through multiple channels
- Integrated views and opinions of customers while making the interaction with customer transactions at every level.

2.3.5 Implementation of CRM System

Implementing CRM without identified customer strategy is a problem. The company may get some interesting results, but chances of hitting the target are slim. To implement a successful CRM is defining who company's customers are. CRM is a supportive technology. Use only as directed, and only after the company know what want to support. If company's CRM system allows company to surprise customer with service that goes beyond what is anticipated, the company will be well on the way to building and maintaining loyal customers.

Whether the company have a terrific customer strategy or have invested liberally in technology, CRM will not transform a product-centric organization into a customer-focused organization. Before a CRM initiative will succeed in organization, the culture and the practices need to be brought into line with the new strategy. The probability of a successful CRM deployment is highest for organizations that have revamped their internal structure and systems. Organizational readiness precedes the technology miracle.

The right technology can be anywhere along the technology spectrum. Most CRM vendors would have you believe that CRM is synonymous with technology but it is not true. One of the biggest mistakes the company can make in deploying CRM is to adopt technology that outstrips the capability of organization or your customer. It is better to examine low-tech

alternatives like handwritten notes and follow-up phone calls first. Look for suitable technologies that promote effectiveness over efficiency.

CRM is often sold to top management, but CRM will eventually contribute to company profits. But the company should understand that without some way to track the return on your CRM investment, a project that is supposed to produce a cash surplus often mutates into a cash drain.

CRM collects and organizes information about customers of companies. It allows you to analyze these data for future opportunities. From understanding customer behavior, the company will have strategy. It provides what the customers really want in one product. CRM can help companies to identify the most productive items to sell to customers.

Thanks to tool in CRM system, employee can identify and concentrate on company's best customer. They can categorize their customers because they understand that: don't treat customers in the same way. Every customer has different characters or behavior. So buying behavior of customer also is different. If the employees have categories of kind of customers after analysis, the ability to sale actually increase. Without CRM system, the employees have to own many data of customers. They can't do anything with the large amount of data.

In every situation, even in the economic crisis, we still must develop customer relationship. The company can use CRM information to determine where a lead is in the buy cycle. Here they would like to concentrate on the potential customers.

Finding potential customers, finding new customers, they do everything to make it done well. But in side of loyal customers, the company shouldn't forget. We have many new customers, potential customers, that is important but keeping the relationship with loyal customers is also very important. If any companies have a large amount of loyal customers, it means that his business is on the way to success. CRM provides tool to help employees have some modules to keep in talk with customers. Maybe in the mind of employees should be loyal customers.

2.3.4 Who use CRM?

Administrator of system

- Generate database
- Install CRM
- Set up configuration system

Manager

- Generate group of user
- Statistic business situation
- Set up marketing campaign

Staff

- Manage the reports of staffs and their works
- Insert customer information, information of potential customer
- Plan for the everyday work
- Generate and track sale opportunities

CRM is used: Generate order, contract and price list

- Marketing Department
- Sale Department
- Personal Relationship Department
- Financial Department
- Statistic Department

2.3.5 The Factors of Successful CRM Implementation

Many things decide a successful CRM implementation. Here we only show some factors. It may help you to understand:

The first the company should think that CRM is the relationship. It is not really technology solution. The data of customers is more and more improved. The employees really work productively. They communicate with customers not only by words. Before meeting their customers, they must understand how their customers are, and in the appointment what they should talk or discuss with customers. Each of employees must be professional with customers. Then they have effective reports of customer transactions, sales transaction, and marketing campaign.

The company wants to own a CRM system and want it to be successful. It is not effective without understanding company organization. If the companies want to the organization, they must have strategy. From strategy, the company can build the organization.

It is necessary to have CRM strategy. CRM strategy drives organization structure and technology. CRM implementation is not successful without CRM strategy

The company should understand who is their customer? What do they want from companies? Therefore the company have plan for new products.

2.3.6 The future for CRM

The future for CRM is bright. To achieve success we must focus the resources of a corporation specifically on the task at hand. Senior management and users of the system must work together establishing objectives, strategies and tactics that will be understood and agreed to by all within the company. Technology must be selected for a particular environment with consideration for the appropriate scope of the initiative. CRM must be exercised with good business judgment and within the personality of an industry. Success in CRM can and will be attained through leadership, teamwork, initiative and an appreciation for the complexity of the undertaking.

3 Microsoft Dynamic CRM

3.1 Overview

“Microsoft Dynamics CRM is designed to help your organization acquire and retain customers and reduce the time spent on administrative tasks. At its core, Microsoft Dynamics CRM provides a robust account management system that automatically tracks activities and revenue.”^[11]

Microsoft Dynamics CRM also can run from within Microsoft Office Outlook. This software is a powerful, flexible tool that helps you track and facilitate interactions with customers and supports the entire customer lifecycle from marketing, to sales, through service. The core modules that track customer interactions are:

- **Accounts:** Manage accounts, which are companies that company does business with.
- **Contacts:** Manage contacts, which represent the customer, potential customer, or individuals related to an account.
- **Notes:** Track details and attach files to record types. A single record can have one or more notes attached to it.
- **Activities:** Track all interactions regarding a record in the system. Activities track e-mails, phone calls, appointments, tasks, and more.

3.2 User Interface Design of MS CRM

3.2.1 Activity Management

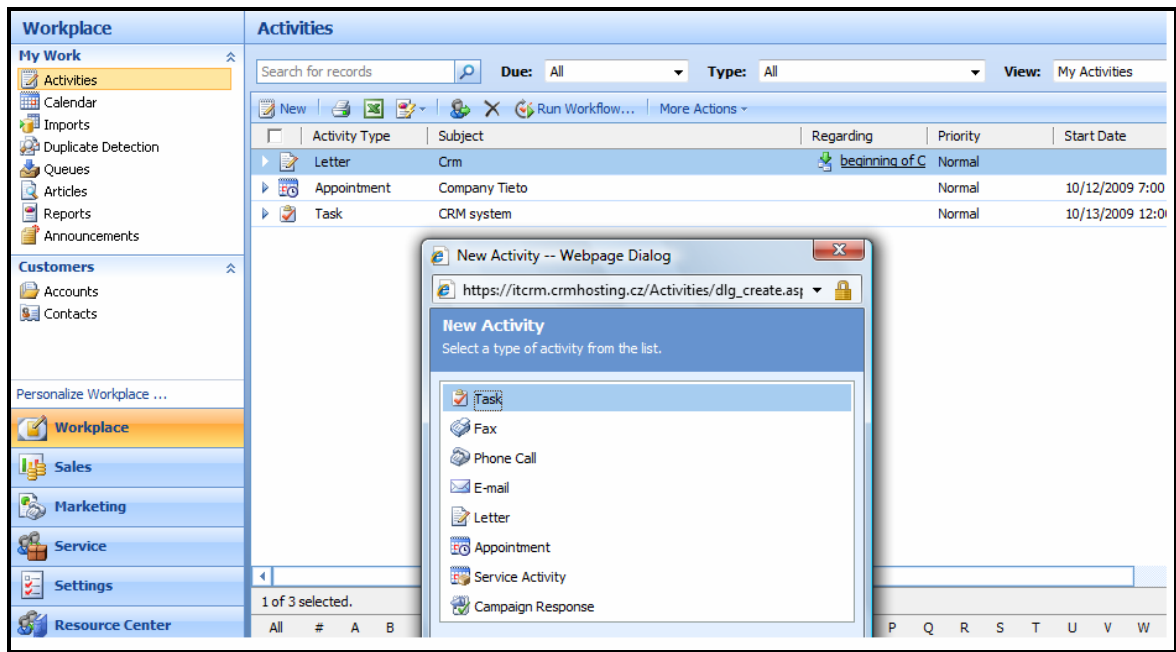


Figure 5-1: Activity Management View

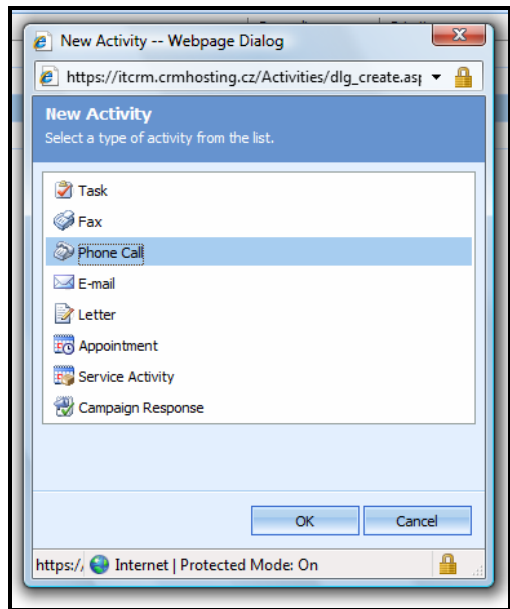


Figure 5-2: Type of Activity

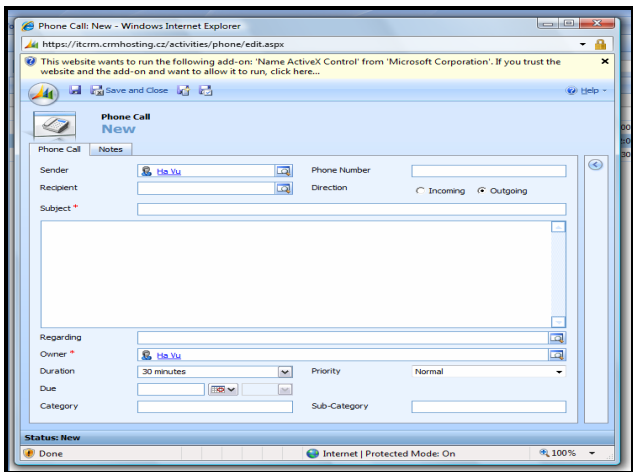


Figure 5-3: Activity Creation form

3.2.2 Customer Management

The screenshot displays the 'Account: New' form in Microsoft CRM. The 'Information' tab is active, showing various fields for account creation. The left sidebar provides navigation for different CRM modules. The form fields are organized into sections: General (Account Name, Account Number, Parent Account, Primary Contact, Relationship Type, Currency), Address (Address Name, Street 1, Street 2, Street 3, City, State/Province), and Contact Information (Main Phone, Other Phone, Fax, Web Site, E-mail). There are also fields for ZIP/Postal Code, Country/Region, Address Type, Shipping Method, and Freight Terms.

Figure 6: Customer Management View

3.3 The Advantage and Disadvantage

After using MS CRM, we can see some advantages for managing customer service. It comes with powerful reporting tools and data import tools. MS CRM provide customer entity relationships such as many to many and self referential entities. It can be integrated to Microsoft Office and the sales report can be created not only by the administrator but also by the users. Sales people can create their own individual quick campaigns and based upon the administration roles and user rights, the manager of the company can view the report of the complete sales force. Through, Outlook the salesperson can anytime see the profile of a customer. It is really easy to use.

Beside the advantage, there are also disadvantages. It can only run on the Window. The modules lack support for power dialing and voice messaging. There is no provision to record sales message and to track a customer through the sales message. The MS CRM has a common problem like the other products of Microsoft, which is cost of product.

4 Data Analysis

4.1 Evidence of system

- **Employee** (**id**, emplId, fname, lname, birthday, companyphone, email, fax, gender, homephone, job_position_id, mobile, note, province, state street)
- **Client** (**id**, clientId, *employee_id*, relation_id, fname, lname, gender, jobPosition, birthday, company, companyPhone, companyProvince, companyStreet, email, fax)
- **JobPosition** (**id**, jobTitle)
- **Relation** (**id**, relationTitle)
- **Opportunity** (**id**, *client_id*, product_id, rating_title_id, *employee_id*, topic, close_date, actual_close_date, actual_close_date, revenue, description)
- **Rating_title** (**id**, title)
- **Product** (**id**, code, name, price)
- **Order** (**id**, *employee_id*, *client_id*, ship_method_id, code_order, code_order, code_shop, name_ship, company_name_ship, phone_ship, email_ship, zip_ship, date_order, delivery_date)
- **ShipMethod** (**id**, title_ship_method)
- **OrderItem** (**id**, *order_id*, *product_id*, amount, description)
- **ActivityList** (**id**, *employee_id*, acterm_id, priorityKind_id, actStartDate, actDueDate, actcreate, subject, description)
- **ActivityToClient** (**id**, *employee_id*, *actList_id*, *client_id*, sending)
- **ActCrm** (**id**, actCrm_name, note)
- **PriorityKind** (**id**, priorityName)
- **CampaignList** (**id**, currency_id, campType_id, product_id, status_id, campCode, campName, expectedResponse, campStartDate, campEndDate, budgetAllocated, estimatedRevenue, miscellaneousCost)
- **CampaignManagement** (**id**, campaignList_id, *employee_id*)
- **CampaignDefaultActivity** (**id**, actCrm_id, camp_activity_title, description)
- **ActivityOfCampaign** (**id**, campaignManage_id, camp_default_activity_id, act_vertex_end_id, edge_activity_diagram)
- **CampaignActivityToClient** (**id**, *campaignManage_id*, *client_id*, activity_of_campaign_id, camp_default_activity_id, scheduled_end, scheduled_start, priorityKind_id, subject, description)
- **Currency** (**id**, currencyName)
- **CampaignType** (**id**, campaignTypeName)
- **Status** (**id**, status_title)
- **Questionnaire** (**id**, *campaign_id*, questionnaire_title)

- **Question** (*id*, *questionnaire_id*, question_title)
- **QuestionnaireToClient** (*id*, *client_id*, *questionnaire_id*, send_date)
- **AnswerFromClient** (*id*, *questionnaire_to_client_id*, overall_rating)

4.2 Data Dictionary

4.2.1 Table Employee

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N	Y	
emplId	bigint	20	FK	N	Y	
fname	varchar	20				first name
lname	varchar	20				last name
birthday	datetime					
companyphone	varchar	20				
email	varchar	255				
fax	varchar	20				
gender	varchar	6				
homephone	varchar	20				
job_position_id	bigint	20	FK	N		
mobile	varchar	20				
note	varchar	20				
province	varchar	20				
state	varchar	20				
street	varchar	20				

4.2.2 Table Client

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N	Y	
clientId	varchar	20			Y	
employee_id	bigint	20	FK	N	Y	
relation_id	bigint	20	FK	N		
fname	varchar	20				first name
lname	varchar	20				last name
gender	varchar	6				
jobPosition	varchar	20				
birthday	datetime					

company	varchar	20				
companyPhone	varchar	20				
companyProvince	varchar	20				
companyState	varchar	20				
companyStreet	varchar	20				
email	varchar	255				
fax	varchar	20				

4.2.3 Table JobPosition

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
jobTitle	varchar	20				

4.2.4 Table Relation

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
relationTitle	varchar	20				

4.2.5 Table Opportunity

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
client_id	bigint	20	FK	N		
product_id	bigint	20	FK	N		
rating_title_id	bigint	20	FK	N		
employee_id	bigint	20	FK	N		
topic	varchar	100				
close_date	datetime					
actual_close_date	datetime					
revenue	float					
description	varchar	255				

4.2.6 Table Rating_Title

Atribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
title	varchar	20				

4.2.7 Table Product

Atribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
code	varchar	20				
name	varchar	20				Name of Product
price	float					

4.2.8 Table Order

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
employee_id	bigint	20	FK	N		
client_id	bigint	20	FK	N		
ship_method_id	bigint	20				
code_order	varchar	20		N		
code_ship	varchar	20		N		
name_ship	varchar	20		N		
company_name_ship	varchar	20				
phone_ship	varchar	20		N		
email_ship	varchar	255				
zip_ship	varchar	20				
date_order	datetime			N		
delivery_date	datetime			N		

4.2.9 Table ShipMethod

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
title_ship_method	varchar	50				

4.2.10 Table OrderItem

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20				
order_id	bigint	20	FK	N		
product_id	bigint	20		N		
amount	varchar	20		N		
description	varchar	20				

4.2.11 Table ActivityList

Atribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
employee_id	bigint	20	FK	N		
actcrm_id	bigint	20		N		
priorityKind_id	bigint	20				
actStartDate	datetime					
actDueDate	datetime					
actcreate	varchar	20				
subject	varchar	100		N		
description	varchar	200				

4.2.12 Table ActivityToClient

Atribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
actList_id	bigint	20		N		
client_id	bigint	20	FK	N		
sending	datetime	20				

4.2.13 Table ActCrm

Atribute	Data Type	Length	Key	Null	Index	Description
Id	bigint	20	PK	N		
actCrm_name	varchar	20		N		
note	varchar	20				

4.2.14 Table PriorityKind

Atribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
priorityName	varchar	20		N		

4.2.15 Table CampaignList

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
currency_id	bigint	20		N		
campType_id	bigint	20		N		
product_id	bigint	20		N		
status_id	bigint	20		N		
campCode	varchar	20		N		
campName	varchar	20		N		
expectedResponse	float					
campStartDate	float			N		
campEndDate	float					
budgetAllocated	float					
estimatedRevenue	float					
miscellaneousCost	float					

4.2.16 Table CampaignManagement

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
campaignList_id	bigint	20	FK	N		
employee_id	bigint	20	FK	N		

4.2.17 Table CampaignDefaultActivity

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
actCrm_id	bigint	20		N		
camp_activity_title	varchar	20		N		
description	varchar	255				

4.2.18 Table ActivityOfCampaign

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
campaignManage_id	bigint	20	FK	N		
camp_default_activity_id	bigint	20		N		
act_vertex_end_id	bigint	20		N		
edge_activity_diagram	varchar	20				

4.2.19 Table CampaignActivityToClient

id	bigint	20	PK	N	
campaignManage_id	bigint	20	FK	N	
client_id	bigint	20	FK	N	
activity_of_campaign_id	bigint	20		N	
camp_default_activity_id	bigint	20		N	
scheduled_end	datetime				
scheduled_start	datetime				
priorityKind_id	bigint	20		N	
subject	varchar	100		N	
description	varchar	255			

4.2.20 Table Currency

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
currencyName	varchar	20		N		

4.2.21 Table CampType

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
campaignTypeName	varchar	20		N		

4.2.22 Table Status

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20		N		
status_title	varchar	20		N		

4.2.23 Table Questionnaire

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK			
campaign_id	bigint	20		N		
questionnaire_title	varchar	20				

4.2.24 Table Question

id	bigint	20	PK	N		
questionnaire_id	bigint	20	FK	N		
question_title	varchar	20				

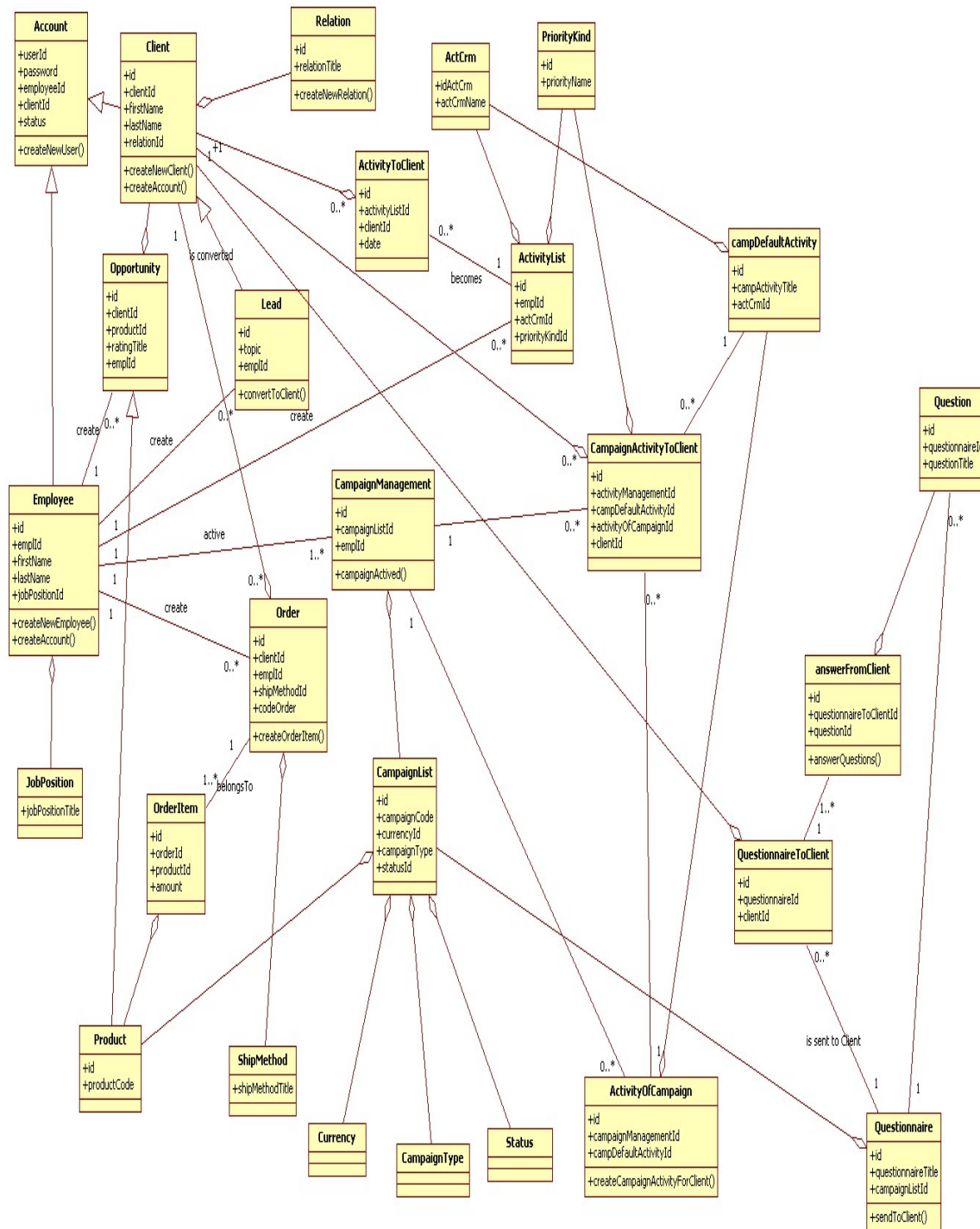
4.2.25 Table QuestionnaireToClient

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20				
client_id	bigint	20	FK	N		
questionnaire_id	bigint	20	FK	N		
send_date	datetime					

4.2.26 Table AnswerFromClient

Attribute	Data Type	Length	Key	Null	Index	Description
id	bigint	20	PK	N		
questionnaire_to_client_id	bigint	20	FK	N		
overall_rating	varchar	20				

4.3 Class Diagram



4.4 Functional Specification

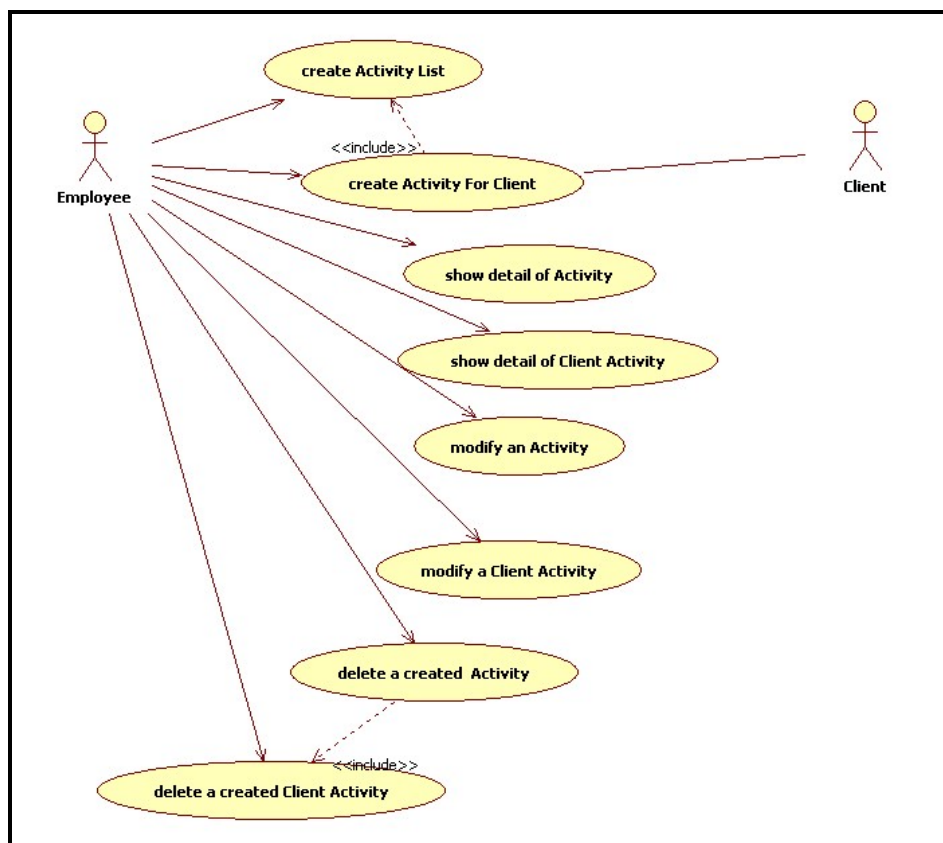
The idea of CRM system is that it helps businesses use technology and human resources to gain insight into the behavior of customers and the value of those customers. With an effective CRM strategy, a business can increase revenue by:

- Providing services and products that are exactly what your customers want
- Offering better customer service
- Cross selling products more effectively
- Helping sale staffs close deals faster
- Retaining existing customers and discovering new ones

4.4.1 Use Case for Functional Requirements

4.4.1.1 Activity Management

It supports for the staffs to manage their time and working plan better and more clearly. It is easy for them to make plan for customer's activity, and this tool involves the reminder calendar. When the times of activities come nearly, the reminder calendar shows the item of activities. They are also able to manage histories of activities.



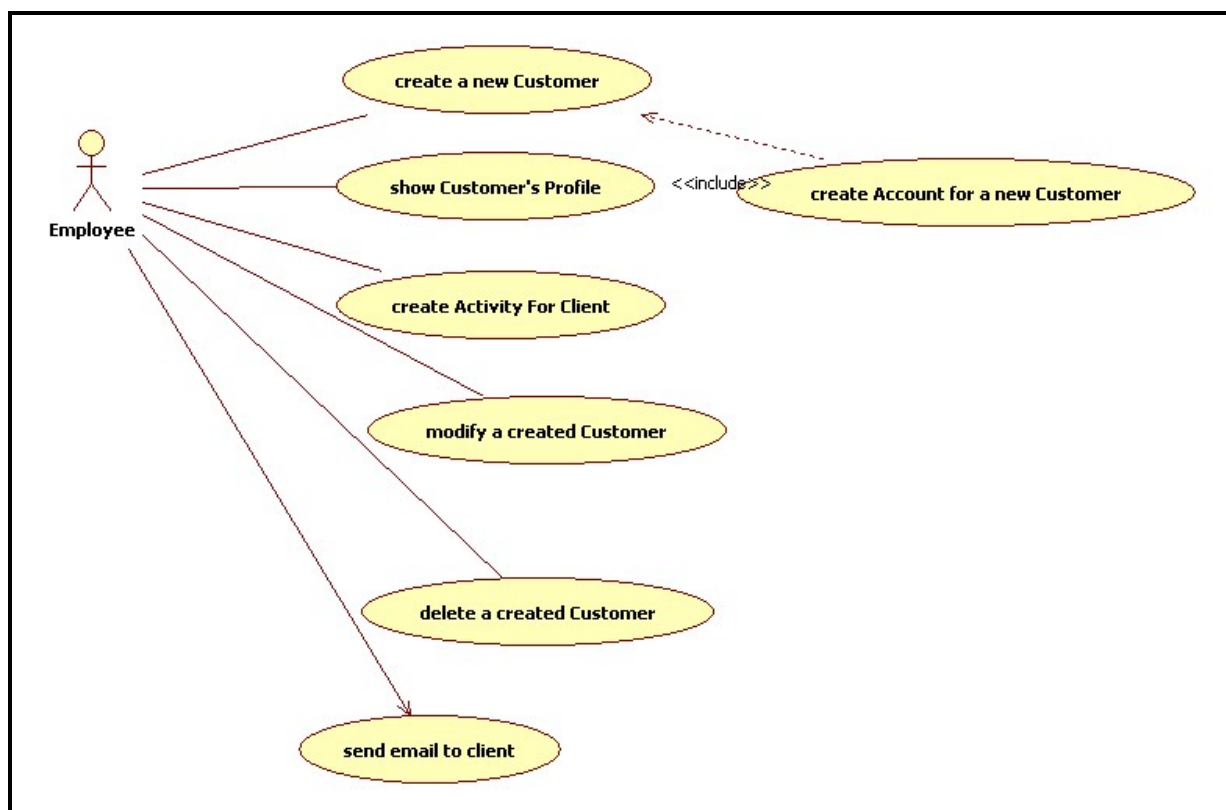
Follow the use case diagram we know in the activity of workplace what the staffs are able to do:

- View list of activities which existed in the system.
- Show the detail of a created activity
- Create new activity according to the types of activities :
 - Task
 - Fax
 - Phone call
 - Email
 - Letter
 - Appointment
- When there is a activity, the employee can create new task with customer
- Modify a created activity

- Delete a created activity and a created activity of customer also is deleted

4.4.1.2 Customer Management

The goal of Customer Management is to make the customer relationships stronger. CRM Customer is the people that a company will have or already has an on-going the relationship. By the customer management of system, each staffs of the company begin tracking their customer. First of all, they own a profile of customer. The profile of customer is more clearly than usual one. It involves basic information and the detail of information, such as: customer's revenue. Secondly, history of customers' transaction, record about customers' orders, invoices can be shown that the employee oversee and manage.



By this diagram, we can know that the system understand:

- View the list of customers, which are created.
- Create new customer's profile
- Modify customer's profile
- Create activity for the customer.
- Create account from a created customer
- Delete customer which is created
- Send email to a customer

4.4.1.3 Lead Management

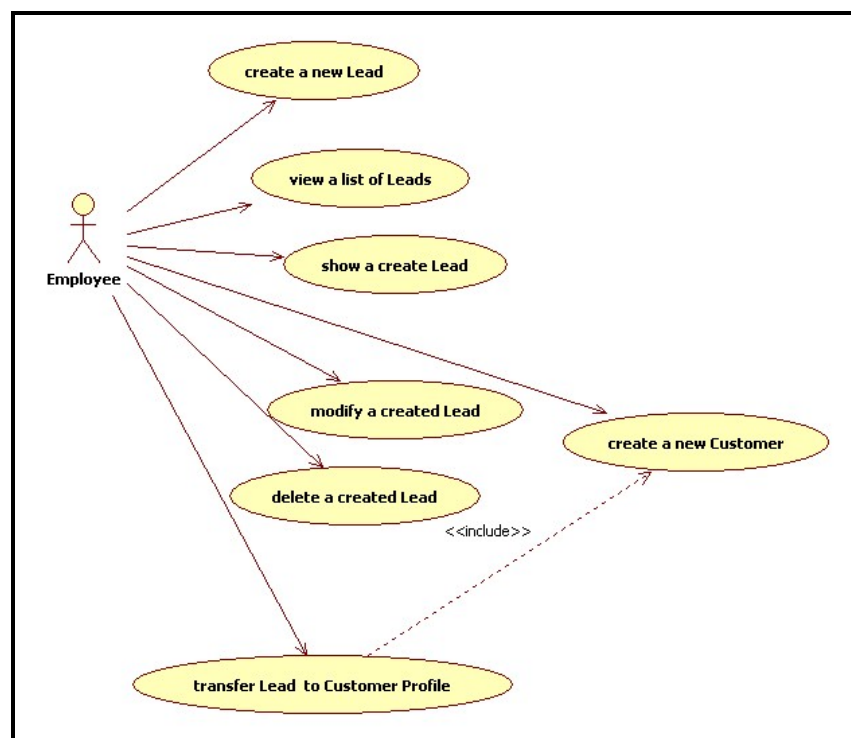
Overview about the progression in the sale pipeline: Lead → Opportunity → Customer.

In many cases a sale starts as a lead, become an opportunity and then a customer in order. Lead Management allows Sale Managers to keep a close eye on the new lead activities. From it the staff can find out the potential customer. In general, there is no current or past relationship history with these lead. We can understand that Lead is a person

- who might be interested in what the seller sell but who has not yet indicated any interest
- or who has expressed interest in what the seller sell but who has not yet met the criteria to be considered a Sale Opportunity.

All activities, such as e-mail, phone calls, and meeting are logged, so that a running history of every communication activity with the lead is kept.

Because most customers start at the lead stage and progress from there to opportunities and then be a current customer, the system provide administrative feature for converting them into Opportunities Management or Customer Management.



In the Lead Management, the employee can:

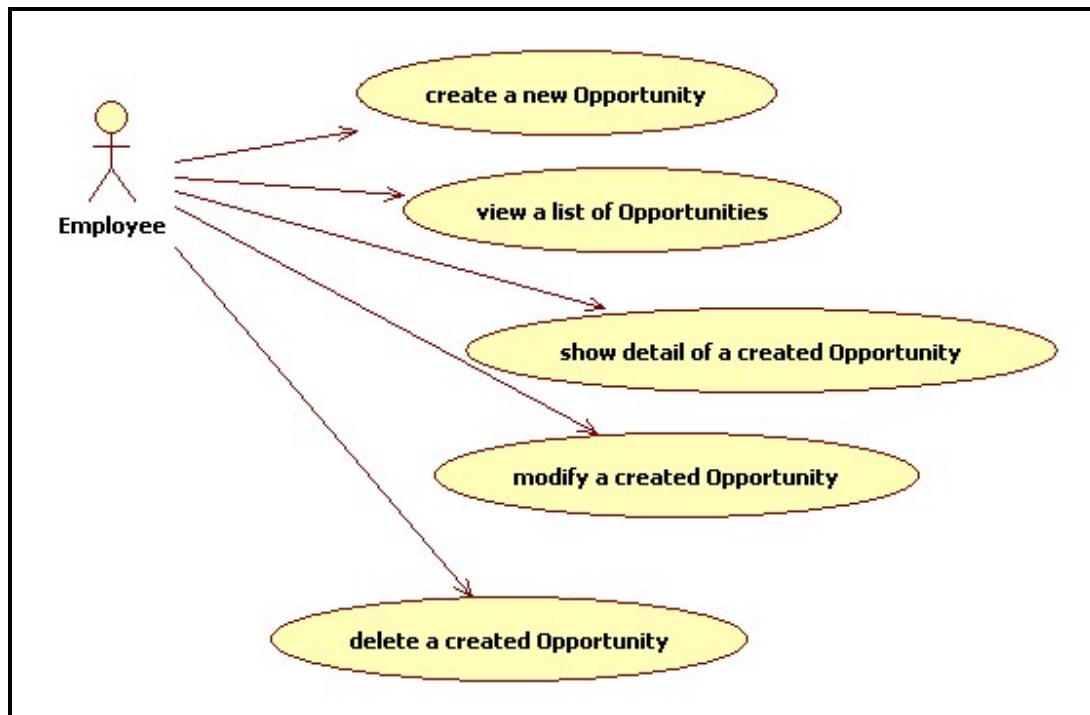
- View list of leads which were created.
- View the detail of a created lead
- Create a new lead

- Modify profile of lead created
- Delete a create lead
- Convert lead to Customer Management or Opportunity Management

4.4.1.4 Opportunity

The CRM Opportunity signals the kickoff of a company's sale process with a potential or existing customer. The opportunity in the sale's progression could be the second stage, where the sale staff has spoken with someone and they have indicated that they are fact interested in what selling.

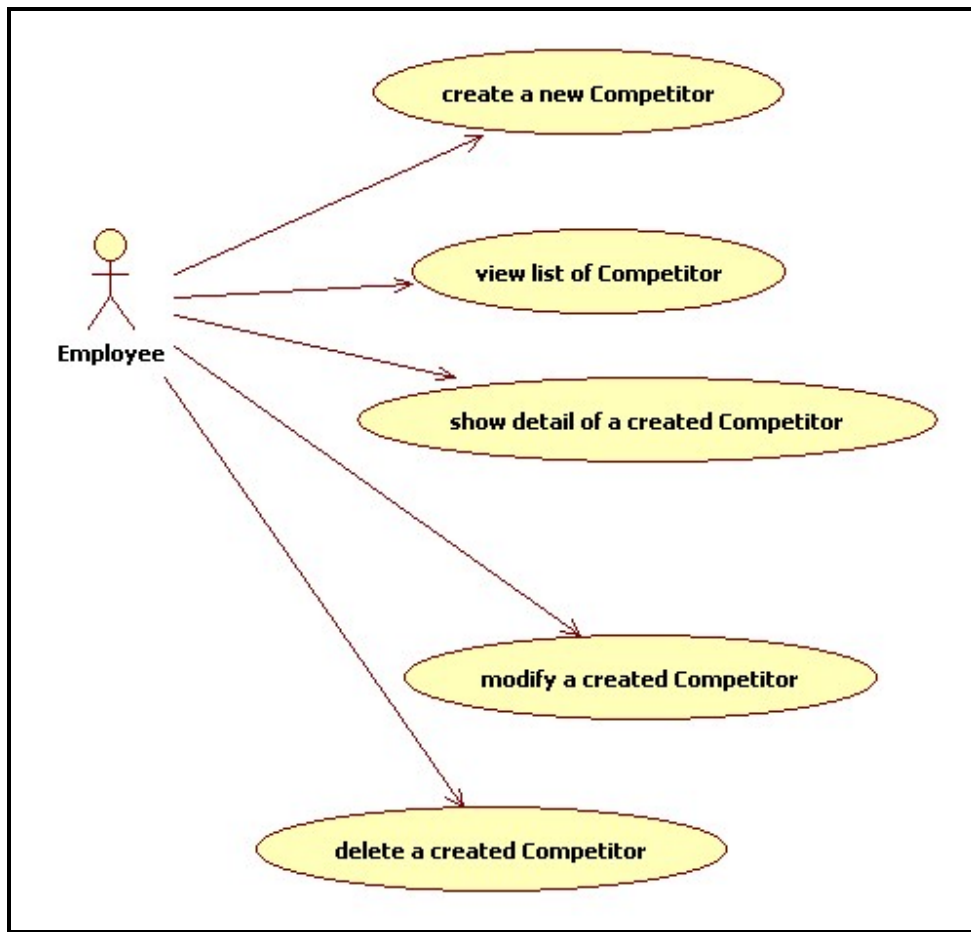
The sale force can use this tool to track information about each opportunity, such as the contact information, the stage of the opportunity, the salesperson who is actively working it, assignment of revenue credit if the sale goes through, and an assessment on the likelihood of closing and a projected closing date.



- View list of opportunities
- View the detail of a created opportunity
- Create a new opportunity
- Modify a created opportunity
- Delete a created opportunity

4.4.1.5 Competitor Management

Understanding about the competitor is necessary not to lose customers to a competitor. The sale staffs could see their competitors who have the same product on selling. The competitor's profile is about a detail of strength, revenue, product's information.

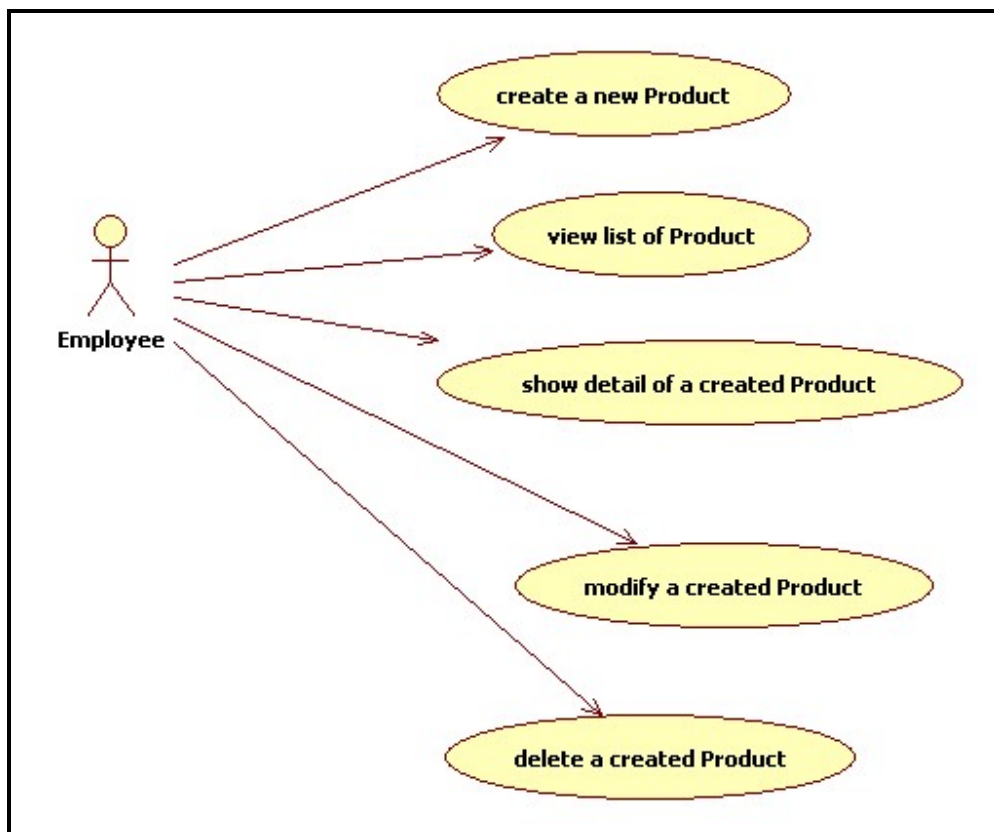


In the Competitor Management, the employee can:

- View list of competitors
- View a created competitor's profile
- Create a new competitor's profile
- Modify a created competitor's profile
- Delete a created competitor's profile

4.4.1.6 Product Management

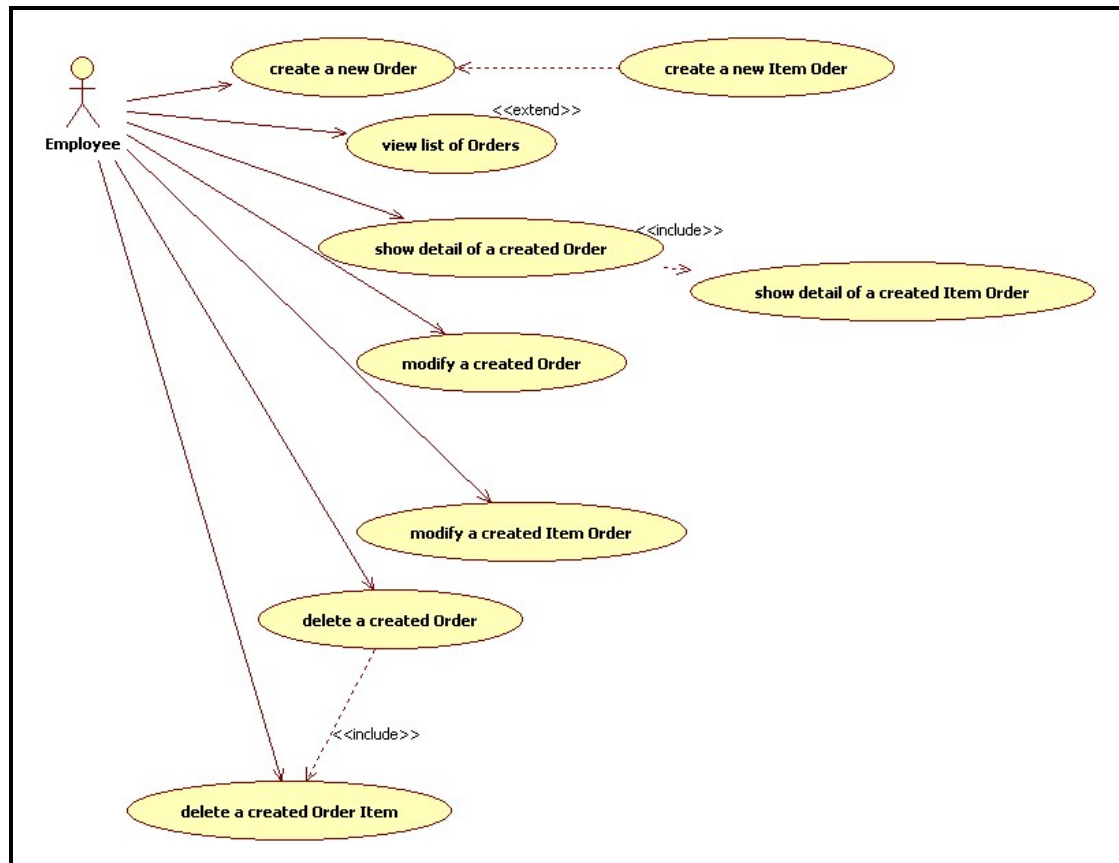
The necessity in the sale is that the sellers have clear products' records. They can create new information about product and also own product's history



- View list of products.
- View the detail of one product
- ~~Create the view information about products.~~
- Edit product's information created
- Delete product's information created.

4.4.1.7 Order Management

The Employee can feel satisfy because in the system they could manage the customer relationship and the order of customer.

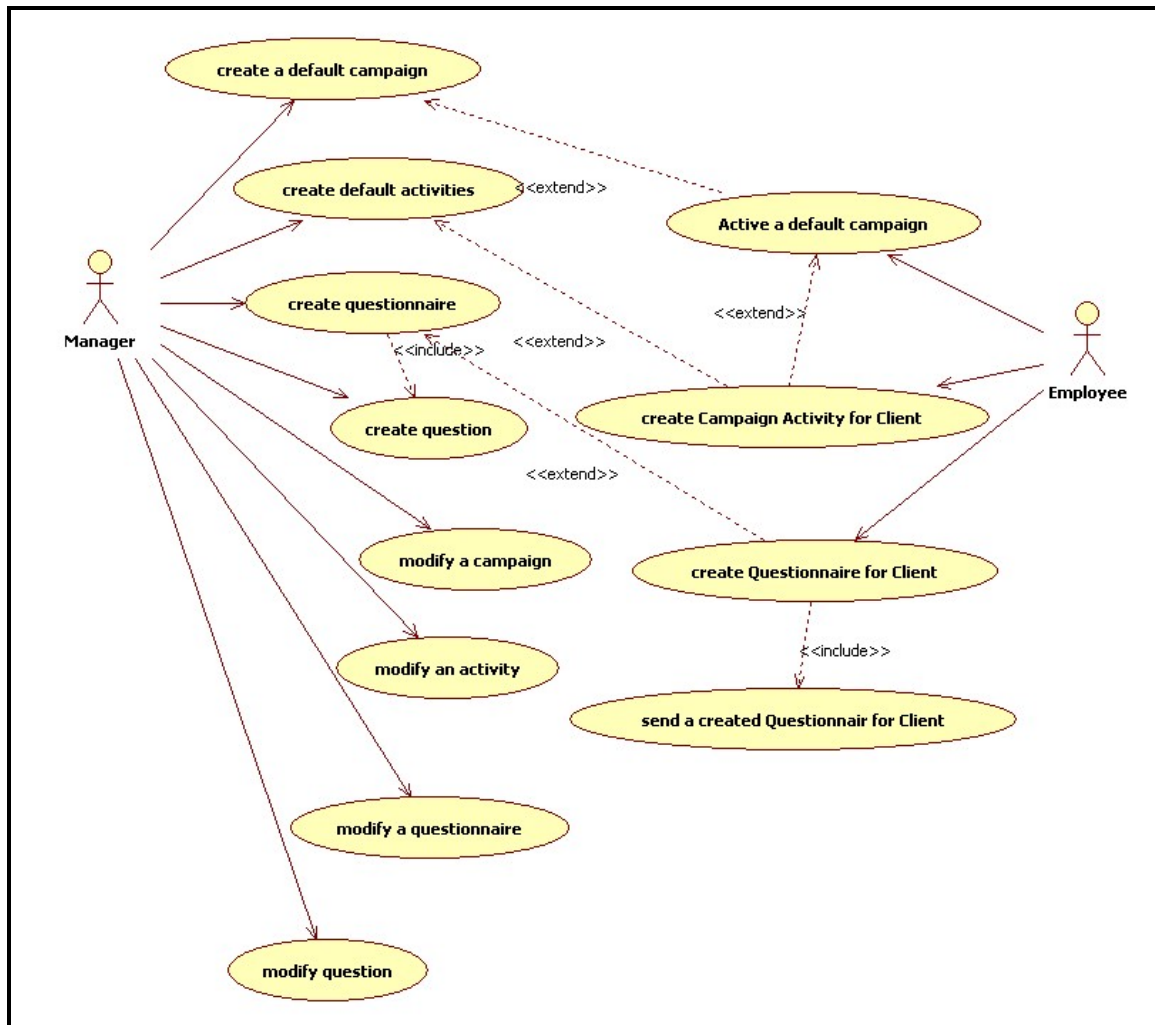


- View list of orders and order items
- View the detail of a created order, which contains order items
- Create a new order and from this order item can be created
- Modify a created order and order item
- Delete order and the order items are also is deleted
- Delete order items

4.4.1.8 Campaign Management

The staff defines the new campaign to market company's product. The system supports the template for a campaign.

We can take advantage of deep reporting, and analysis compatibilities to track response rates, measure interest levels, and monitor costs for every campaign and activity in real time.



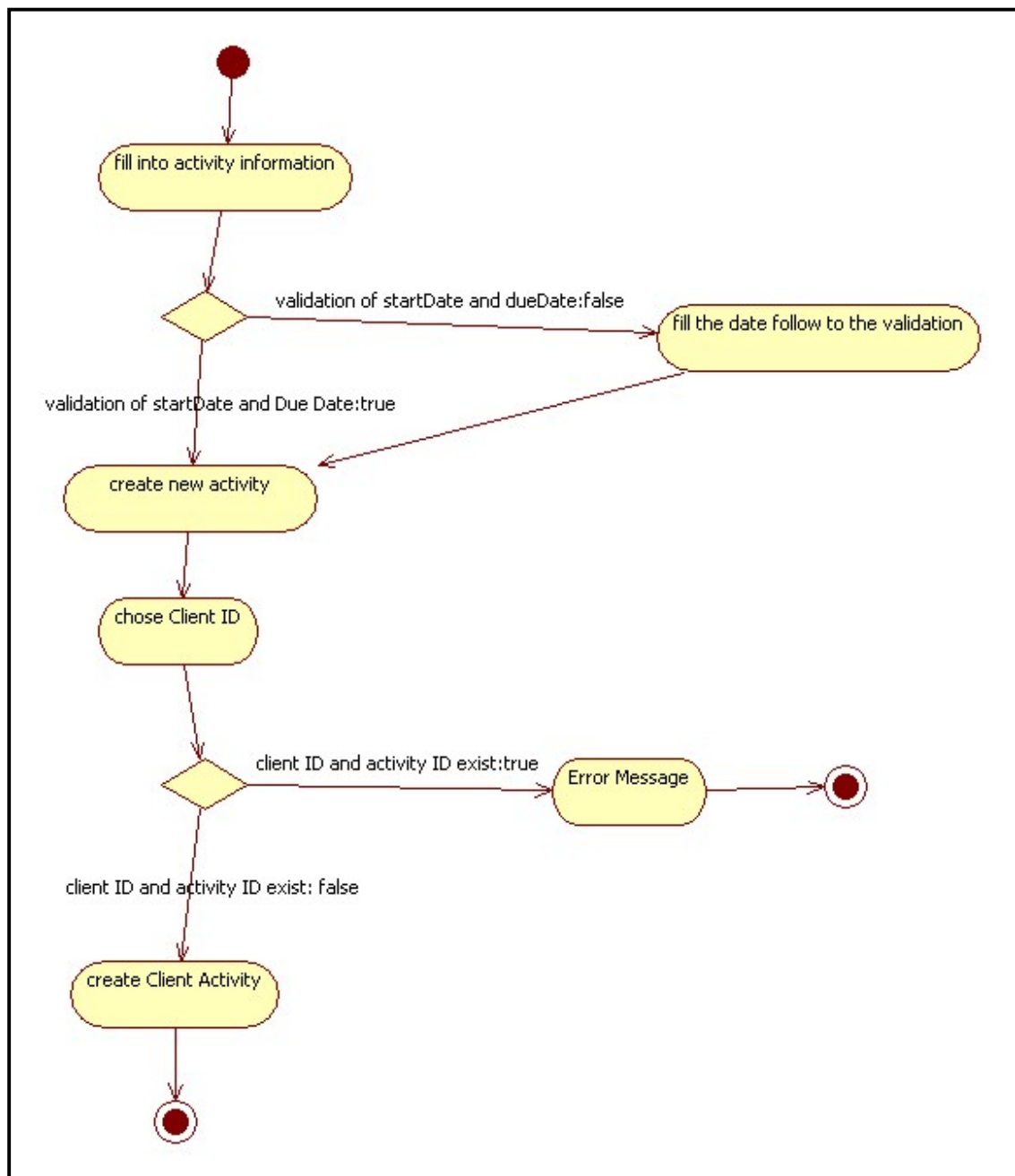
By the diagram, the employees know create a success campaign to customer step by step

- In the system, manager create default Campaigns
- Manager create default Activities
- Employee choose a campaign and active it
- From the list of activities, employee create activities for an active campaign
- Then customer is added in created campaign activity
- Manager create questionnaire for a campaign
- Manager create questions for a created questionnaire

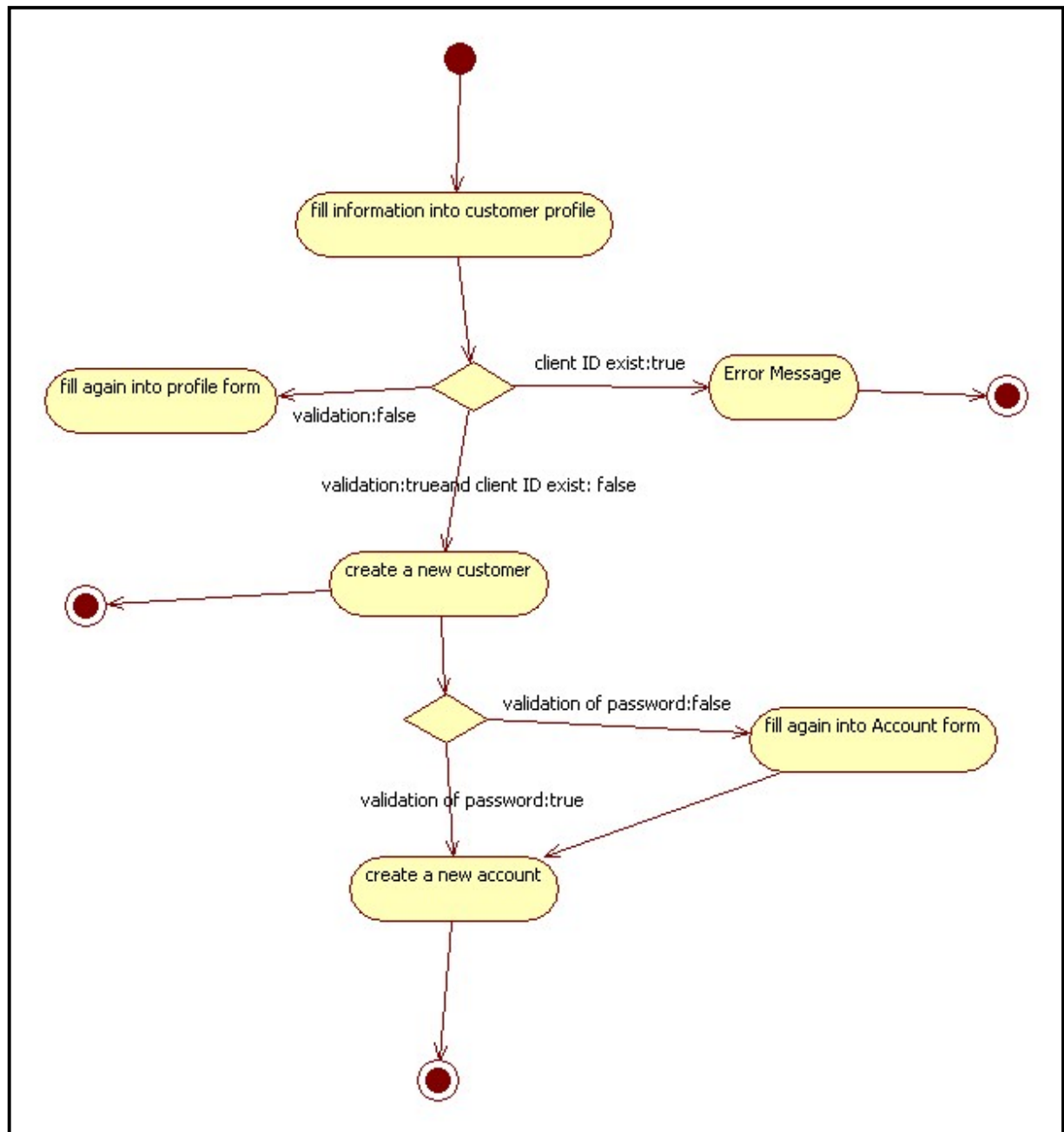
- Employee add customer to the created questionnaire
- Employee send questionnaire to customer who is added
- Manager modify a created campaign
- Manager modify a created activity
- Employee modify a created Customer Campaign Activity
- Manager modify a created questionnaire
- Manager modify a question
- Employee add customer to the created questionnaire
- Employee send questionnaire to customer who is added
- Manager modify a created campaign
- Manager modify a created activity
- Employee modify a created Customer Campaign Activity
- Manager modify a created questionnaire
- Manager modify a question

4.4.2 Functional Activity Diagram

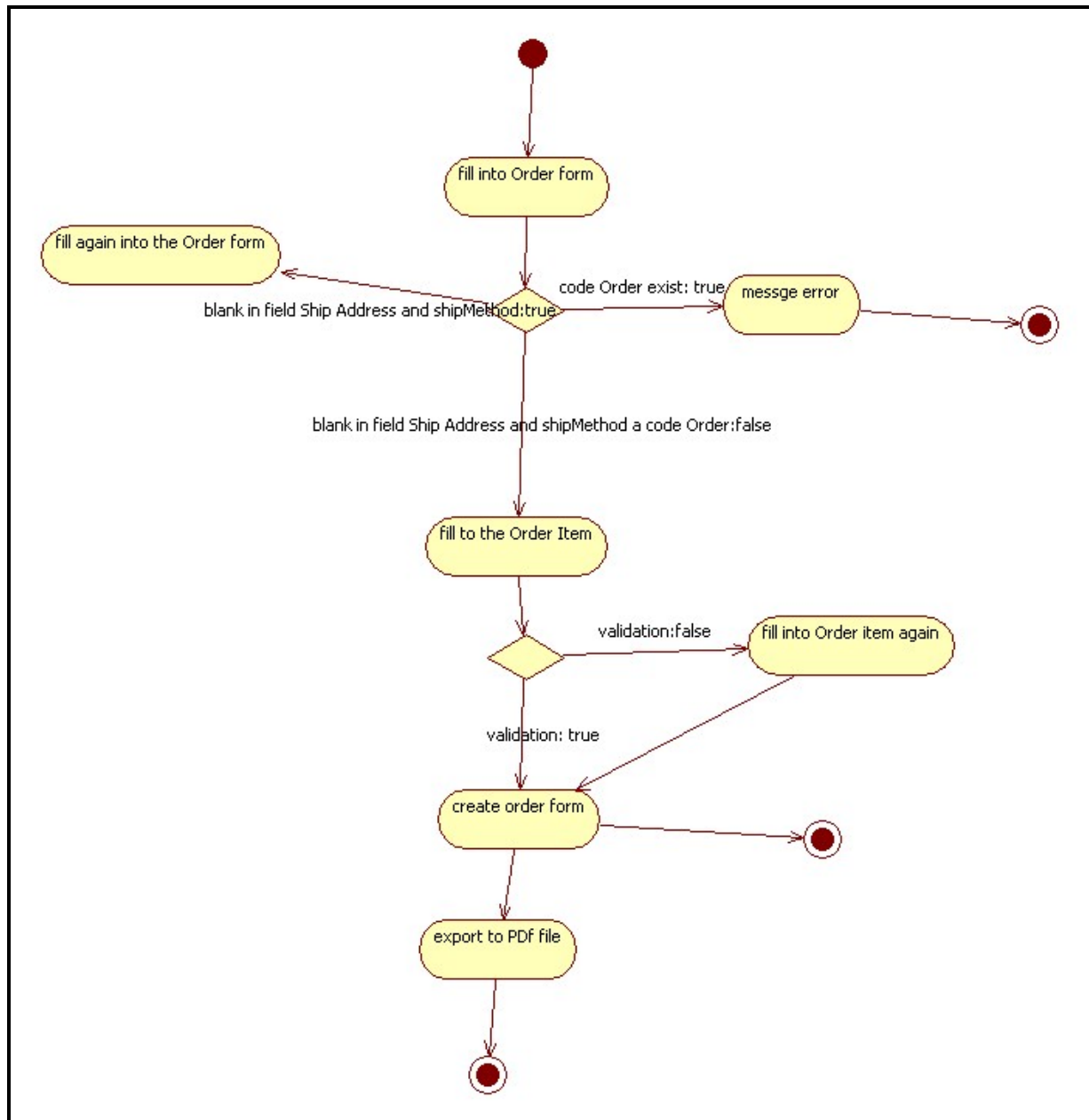
4.4.2.1 Activity Creation



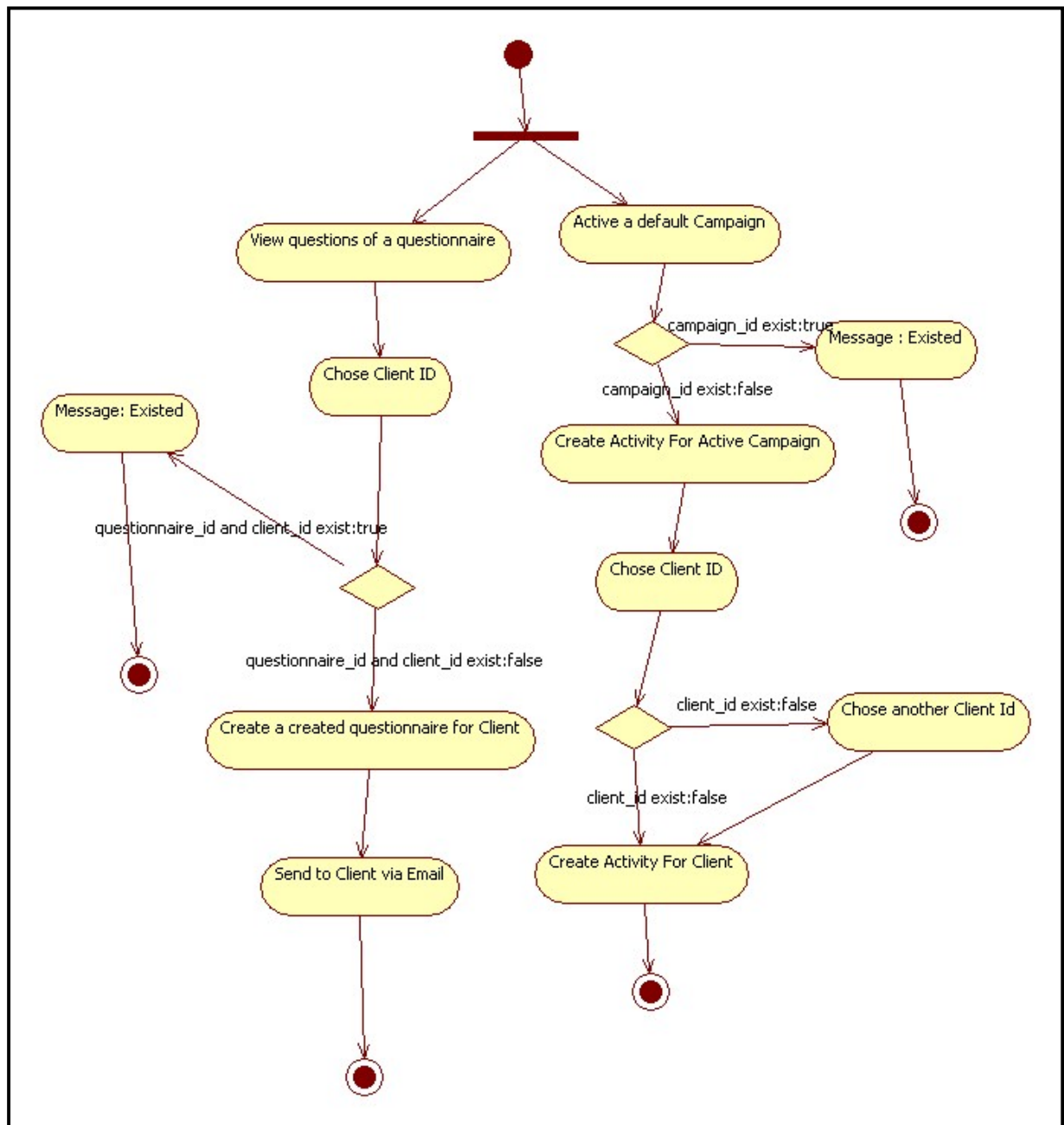
4.4.2.2 Customer Creation



4.4.2.3 Order Creation



4.4.2.4 Campaign and Questionnaire To Customer

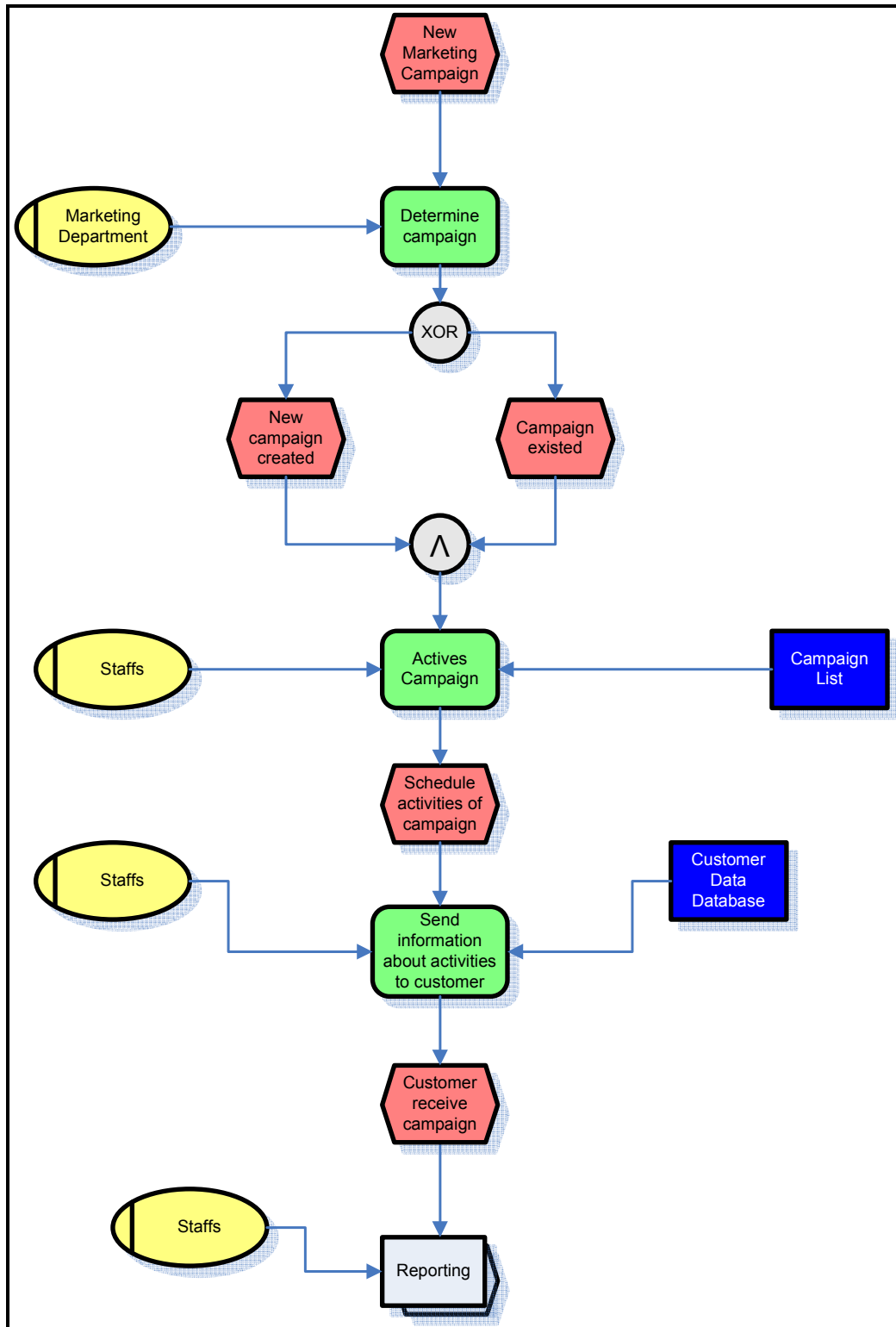


4.4.3 Business Modeling – Event-driven Process Chain (EPC) Diagram

“Method for business modeling represents systematic way how to specify and analyze business process”^[1]

“Event Driven Process Chain (EPC) are based on connecting events and action to the sequences which collectively realize a business objective”^[5]

In the project, process of marketing campaign is described in the EPC Diagram.



5.1 Implementation Environment

- ✓ Framework : Grails
- ✓ Programming Language: Groovy
- ✓ Database : MySQL 5.0
- ✓ Model: MVC (Model-View-Controller)

The system is also supported by CSS, JavaScript and AJAX.

5.2 Introduction about model MVC

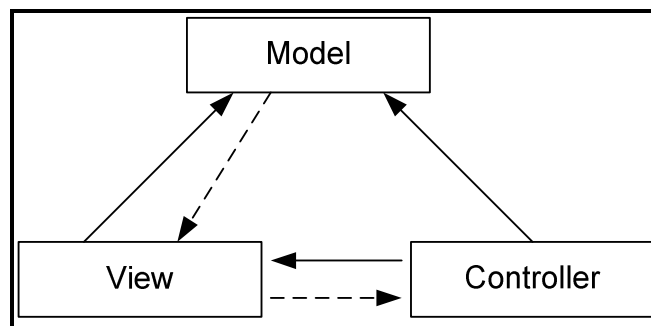


Figure7: Model-View –Controller

Model MVC is software architecture. It is considered as an architectural pattern. We used it when we implement an application which is able to maintain multiple views of the same data. MVC is divided to three separate parts: ^[7]

- Model: represents the data of application
- View: renders a presentation of model data
- Controller: handle and routes requirements of client

Following the figure, we can see how the model MVC works: Controller can change View and Model. When Controller changes the model data, all dependent views are automatically updated. It is the similar when the controller changes a view.

5.3 Grails

Grails is open source web application framework. In Grails the programming language is Groovy. After working with Grails, we realize that it is a high-productivity framework. Grails is a next-generation Java web development framework. Grails is integrated by Java frameworks. There are Hibernate and Spring. Hibernate is used in the Model layer and spring is used in Controller layer. The foundation of Grails is the Java Virtual Machine (JVM).^[4]



Figure 8: Grails Architecture^[6]

Using Grails framework programmers can work quickly and productivity.

5.5 Groovy

Groovy is a relatively new dynamic language. It can be interpreted or compiled. It is designed specifically for the Java platform. We can see this programming language has been influenced by languages such as Ruby, Python, Perl, and Smalltalk, as well as Java. Groovy was designed with the JVM in mind, so there is little to no impedance mismatch, significantly reducing the learning curve. Groovy relies on the Java API rather than supplying its own API. There is Groovy Development Kit (GDK). It actually extends the Java API by adding new methods to the existing Java classes to make them more Groovy. This language is productive.^[3]

6 Implementation of System Scs CRM

6.1 Page Design

Logo		
Menu	Main Page	

6.2 Configuration in Implementation

The first step we modify the file `/grails-app/conf/DataSource.groovy`:

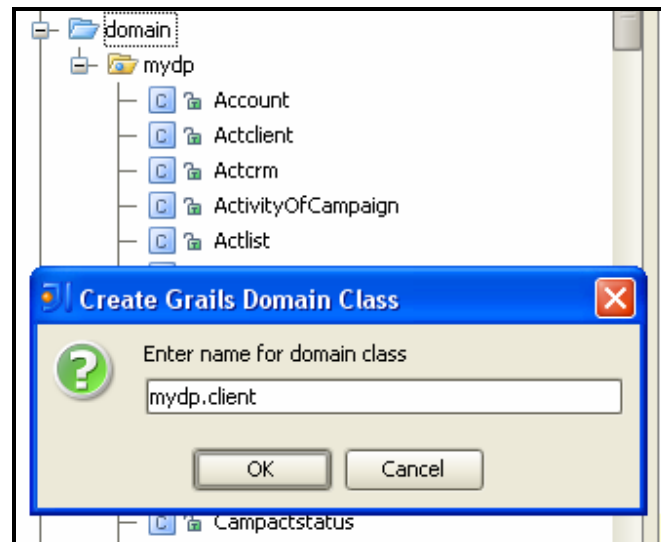
```
pooled = true
dbCreate = "update"
url = "jdbc:mysql://localhost/crm"
driverClassName = "com.mysql.jdbc.Driver"
username = "root"
password = "2412"
}
hibernate {
    cache.use_second_level_cache=true
    cache.use_query_cache=true
    cache.provider_class='com.opensymphony.oscache.hibernate.OSCacheProvider'
}
// environment specific settings
environments {
    development {
        dataSource {
            dbCreate = "update" // one of 'create', 'create-drop','update'
            // url = "jdbc:hsqldb:mem:devDB"
            url = "jdbc:mysql://localhost/crm"
        }
    }
    test {
        dataSource {
            dbCreate = "update"
            // url = "jdbc:hsqldb:mem:testDb"
            url = "jdbc:mysql://localhost/crm"
        }
    }
    production {
        dataSource {
            dbCreate = "update"
            // url = "jdbc:hsqldb:file:prodDb;shutdown=true"
            url = "jdbc:mysql://localhost/crm"
        }
    }
}
```

MySQL is used in project, so we use driver JDBC. In MySQL server we have database, name of which is “crm”. So we modify in environment of DataSource.groovy:

```
url = "jdbc:mysql://localhost/crm"
```

6.3 Domain Classes, Controller and View

“Domain classes are core to any business application. They hold state about business processes and hopefully also implement behavior. They are linked together through relationships, either one-to-one or one-to-many.”^[8]



We create a domain class and from domain class we generate controller and view.

```
package mydp

class Client {

    String clientid

    String fname
    String lname
    String gender
    Date birthday
}
```

Here is the file ClientController. Actions of controller are defined. There are some basic actions: list, show, update, create and save.

```

package mydp

import groovy.sql.Sql
import org.codehaus.groovy.grails.commons.ConfigurationHolder

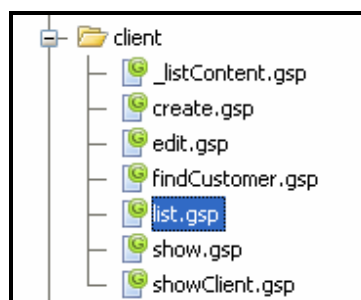
class ClientController {
    def beforeInterceptor = [action: this.&auth]

    def auth() {
        if(!session.account) {
            redirect(action: 'login')
            return false
        }
    }

    def index = { redirect(action: list, params: params) }
}

```

After controller, we see part of view. In the figure, we can see the structure of view. It is separated by each of actions. View page is Groovy Service Page (GSP)



Here is more details about Groovy Service Page

```
<%@ page import="mydp.Client" %>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    <meta name="layout" content="main" />

    <title>Client List</title>

  </head>
  <body>
    <resource:tabView />
    <div class="body">
      <div class="nav">
        <span class="menuButton"><a class="home" href="${resource(dir: '')}">Home</a></span>
        <span class="menuButton"><g:link class="create" action="create">New Customer</g:link></span>
        <span class="menuButton"><g:formatDate format="dd-MM-yyyy HH:MM" date="${new Date()}" /></span>
        <span class="menuButton"><g:link controller="login" action="logout">Logout</g:link></span>
      </div>
      <richui:tabView id="tabView">
        <richui:tabLabels>
          <richui:tabLabel selected="true" title="Customer List" />
          <richui:tabLabel title="Finding Customer" />
        </richui:tabLabels>

        <richui:tabContents>
          <richui:tabContent>

            <g:if test="${flash.message}">
              <div class="message">${flash.message}</div>
            </g:if>
            <div class="list">
              <table>
                <thead>
                  <tr>

                    <g:sortableColumn property="id" title="Id" />

                    <g:sortableColumn property="clientid" title="Customer" />

                    <g:sortableColumn property="fname" title="First Name" />
                </thead>
              </table>
            </div>
          </richui:tabContent>
        </richui:tabContents>
      </richui:tabView>
    </div>
  </body>
</html>
```

6.4 Plug-ins and AJAX

During implementation of project, Plug-ins and AJAX are tools to support functions of application.

Install plug-in in Grails:

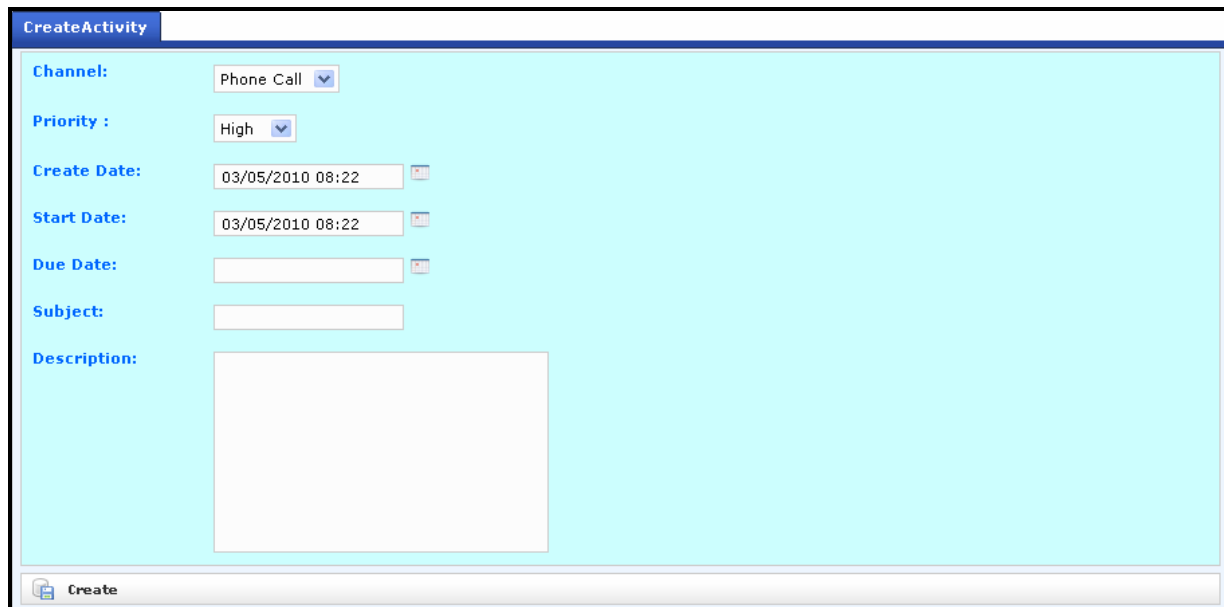
```
“grails install-plugin [name] [version]*” [9]
```

Ajax tag library is supported in Grails to build Ajax applications. ^[10] We put this code to file.GSP to make the Ajax tag work

```
“<g:javascript library="prototype" />” [10]
```

6.5 Activity Management

In the first step, employee fills into the form to create new Activity.



CreateActivity

Channel: Phone Call

Priority : High

Create Date: 03/05/2010 08:22

Start Date: 03/05/2010 08:22

Due Date:

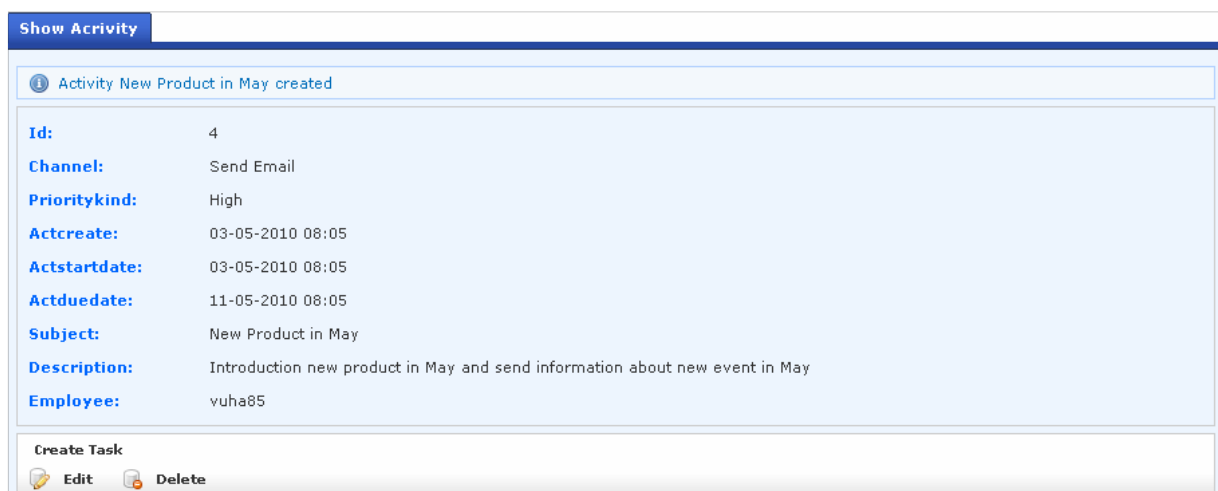
Subject:

Description:

Create

Figure 9-1: Activity Creation Form

After creating, the page is render to view the created activity. Here we can see the button “Edit”, “Delete” and “Create Task”. Button “Create Task” is to create this activity for a customer.



Show Activity

Activity New Product in May created

Id:	4
Channel:	Send Email
Prioritykind:	High
Actcreate:	03-05-2010 08:05
Actstartdate:	03-05-2010 08:05
Actduedate:	11-05-2010 08:05
Subject:	New Product in May
Description:	Introduction new product in May and send information about new event in May
Employee:	vuha85

Create Task Edit Delete

Figure 9-2: Created Activity Show

Click into the “Create Task”, the page is displayed:

Figure 10-1: Customer Activity Creation

After choosing customer, activity for customer is totally created and the view of Activity Information is shown:

Figure 10-2: Customer Activity Show

The remind function is always updated. So the employee easy to manage their task and their customer relationship

Id	Type	Subject	Client	Start Date
0	Send Email	New Product in May	wangd	03-05-2010 08:05

Figure 11-1: Task Remind

Id	Customer ID	Firstname	Lastname	Birthday	Company
39	wangd	Wang	Diana	03-05-2010	Globus China

Figure 11-2: Customer Birthday Remind

6.6 Report Generation

System support tool for employee to generate report easily

Generate Report

Date: 05/05/2010 07:07

Subject:

Description:

B I U ABC Styles Format Font family Font size

Create

Figure 12: Report Generation Form

6.7 Customer Management

Fill into the form to create new customer profile.

Home Client List 03-05-2010 08:05 Logout

Create New Customer

Client ID:

First name:

Last name:

Gender: ☐ Male ☐ Female

Birthday: 3 May 2010

Relation: customer

Company:

Job Position:

Mobile:

Email:

Fax:

Home-Phone:

Company-Phone:

Company Street:

Company Province:

Company State:

Home-Street:

Home-Province:

Home-State:

Description:

Create

Figure 13-1: Customer Creation Form

Then the page is rendered to show the created information. Now here the employee can edit, delete information, and also send email for the customer. If the employee let the customer can login into the customer side of system, they click to the button to create new account for a created customer.

Id:	39	Company Street:	ShangHai 5
Client Id:	wangd	Company Province:	ShangHai
First Name:	Diana	Company State:	China
Last Name:	Wang	Street:	
Gender:	Female	Province:	
Birthday:	1986-05-03 00:00:00.0	State:	
Relation:	customer	Note:	Chinese Company
Company:	Globus China	Employee:	vuha85
Job Position:	Administrator		
Mobile:	+84123963256		
Fax:			
Home Phone:			
Company Phone:			
Email:			

Create Account

Edit Delete

Figure 13-2: Customer Show

User Id:	wangd
Password:	<input type="text"/>
Password2:	<input type="text"/>
Status:	<input checked="" type="radio"/> Client

Create

Figure 13-3: Account Creation Form

Click to tab view to send email. Function send email is interacted in the system

Home Client List New Client 03-05-2010 08:05 Logout

Show Customer Send Email

Client ID: wangd
First Name: Diana
Last Name: Wang
Email: bigfamily85@yahoo.com
Subject:
Description:

Send

Figure 13-4: Send Email Form

6.8 Questionnaire Management

Questionnaire is created with questions. This page show the questions of a questionnaire. The employee can send questionnaire to customer via email and to the client side of system.

Show Questions

1234crmscc : Product success

Id	Question Title
10	Why do you like this product?
11	Is it wonderful?

Send To Customers

Questionnaire List

Id	Campmanage	Questionnaire Title	Show Questions	Add Question	To PDF
1	CRM 2.0	About Product	Show Questions	Add Question	To PDF
2	crm 2.1	Do you like it	Show Questions	Add Question	To PDF
3	crm2010	Product	Show Questions	Add Question	To PDF
4	1234crmscc	Product success	Show Questions	Add Question	To PDF

Figure 14-1: Questionnaire and Questions

This step is to choose a customer to send.

The screenshot shows a web interface for sending questionnaires. At the top, there is a navigation bar with links for 'Home', 'Questionnaire To Client List', and 'Logout'. Below this, the page title is 'Send Questionnaire To Customer'. The form contains three main sections: 'Questionnaire:' with the value 'CRM 2.0 : About Product', 'Client:' with a text input containing 'd', and 'Send Date:' with a dropdown menu. The dropdown menu is open, showing two options: 'dan102, Try, Snaha ----' and 'wangd, Wang, Diana ---- Globus China', with the second option highlighted in yellow. At the bottom of the form is a 'Send' button with a document icon.

Figure 14-2: Send questionnaire to Customer

In the customer side, customer received the questionnaire. He can answer and answer will be saved in the system, and it is useful for the employee to manage a result a their campaigns.

The screenshot shows a table titled 'History Of Questionnaire' with two tabs: 'Questionnaire' and 'History Of Questionnaire'. The table has three columns: 'Campaign : Questionnaire Title', 'Questionnaire', and 'Answer'. There are two rows of data. The first row shows '1234crmscc : Product success' for the campaign, 'Why do you like this product?' for the questionnaire, and an empty text input for the answer. The second row shows '1234crmscc : Product success' for the campaign, 'Is it wonderful?' for the questionnaire, and an empty text input for the answer. Below the table is a 'Create' button with a document icon.

Campaign : Questionnaire Title	Questionnaire	Answer
1234crmscc : Product success	Why do you like this product?	<input type="text"/>
1234crmscc : Product success	Is it wonderful?	<input type="text"/>

Figure 14-3: Questionnaire and questions are displayed in customer side

7 Conclusion

The goal of this Master Thesis is introduction about Customer Relationship Management (CRM) System. It is shown by theory CRM and the illustration system such as Microsoft Dynamic CRM. After that we have a look for our solution.

In the first part, we can understand how CRM System in business is important? Customer is the heart of business. Customer Relationship is a decision for a business to success and growth. It is a result for us to generate a new CRM system. It is easy to use and understand for employee. The employee can manage their work and their customer relationship. Moreover, CRM system is not only tool or software. CRM is strategy. The companies should a logical strategy to succeed.

In the future, the system will be integrated with another application to develop an Enterprise Resource Planning System.

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Content of CD

/text

diplomova_prace_vut001.pdf

/application

crm10-0.1.war